AMERICAN VETERINARY REVIEW.

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EDITORIAL.

THE BUFFALO CONVENTIONS AND THE REVIEW.

When the veterinarians return from their sojourn at the great quadruple meeting of veterinary medical associations in Buffalo, one of the first things that will greet them will be this September issue of the AMERICAN VETERINARY REVIEW. We regret that our regular day of issuance and the day set for the assembling of the hosts at the Queen City of the Lakes are simultaneous, because we have no doubt that a copy of this month's REVIEW would prove an agreeable companion on the route, but the rule to appear near the first day of each month is and is to be inviolable. For this reason the complete programme, as far as was obtainable, was printed in the August number. And this month we simply extend to the veterinary fraternity our compliments and congratulations upon the promise of the largest outpouring of its members that ever gathered in one city in the history of the world. At the same time, we desire to make the announcement that our intention is to present our readers with the most complete report of the proceedings of the conventions at Buffalo that has ever been printed in one issue of a professional periodical. If it is possible, a *verbatim* transcription of the deliberations of the meetings will be printed in that single number, with as many of the papers read as is possible in a great many pages, together with a general *résumé* of the work accomplished, and other interesting information concerning the great event, which will not in any particular interfere with the regular departments of the publication. Every veterinarian in North America should possess a

copy of this number, and each subscriber should see that his neighboring fellow-practitioner is equally fortunate with himself in that he does not miss this opportunity to reap the benefits to be derived from the enterprise of the REVIEW.

SCIENTIFIC CHRONICLES.

PREVENTIVE INOCULATIONS IN CONTAGIOUS PLEURO-PNEUMONIA—COMPARATIVE TEST.—It has been well proven by the United States that the only way to clear a country, no matter how great, from the disastrous presence of pleuro-pneumonia, was the general slaughter of all diseased, suspected, and contaminated animals. And the results obtained by England and by Austria in applying the same measure are no doubt due to the example set by the United States. In some parts of the Continent, however, and probably in France more than in any others, the authorities seem to be afraid of the severity of such measures, and are yet having recourse to inoculation as a means of control.

After the discovery made by Prof. Arloing of the microbe which he named the *pneumo-bacillus liquefaciens*, and which we made our readers familiar with in previous numbers of the REVIEW, it was to be expected that the relations of that bacillus to the development of the disease, though denied by so many—such as Nocard, Bittdel and others—it was, we said, to be expected that the next step would be to test the value of cultures of the bacillus for inoculations. And of course this step was soon made.

But for years back there has been in Europe another process of inoculation—the one with which many of our American *confrères* are familiar; it is the inoculation of Willems. Which of the two was the better—which could be recommended by the Government? To compare the Willems and the Arloing methods a large series of experiments were made lately at Pouilly-le-Fort, already known for the experiments made by Pasteur years ago. These experiments were made with the effect of definitely deciding their comparative value,—both having been tried

already with more or less equivalent results, but with the difference, in favor of the method of Arloing, that the inoculation of the cultures of pneumo-baciline were not followed by the same local results found by the inoculation of pulmonary serosity, as in Willems' method. This experiment had also another object, viz., that of showing the real value of the Willems' method, whose efficacy was doubted by many and by the majority of the veteriniarians present at the Congress of Berne in 1895,—doubt which was expressed by a vote of the Congress, which condemned inoculation as a means of fighting pleuro-pneumonia on a large scale, and which can be permitted as exception only in some localities, on account of peculiar circumstances, where general slaughter would be very difficult to apply.

These experiments were begun on January 10th of this year. Forty cows were bought in a district free from the disease, and divided into three lots. The animals of one lot of thirteen were inoculated by the method of Arloing, those of another lot of thirteen also by that of Willems; fourteen animals were kept as witnesses. The animals of Arloing received two injections twelve days apart, those of Willems only one, as is usual. On February 1st, thirty-eight days after the first inoculations made on both lots, the twenty-six animals were, with the fourteen witnesses, put in contact with one diseased animal, and later on with a second. This exposure lasted fourteen days. Without entering for the present into the minutiæ of the experiments, which we may publish later on, let us give the results of the post-mortems made upon the forty animals on the 10th of May:

1st. Of the lot of the Willems cows, all were free from the disease.

2d. Of the lot of the Arloing cows, nine showed lesions of pleuro-pneumonia.

3d. Of the fourteen witnesses, ten showed also pleuro-pneumonia lesions.

This experiment not only shows the crushing superiority of the Willems method over that of the cultures, but it has also

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confirmed experiments made in 1883 and 1884 by proving that calves born of cows inoculated during gestation enjoy also the maternal immunity. The calves of three cows of the Willems lot, which were pregnant, showed how they were immunized, being born in the middle of a contagion and remained free from disease, though they were kept for more than a month with animals extensively diseased with pleuro-pneumonia.

PNEUMO-BACILLUS LIQUEFACIENS.—The results of the experiments of Pouilly-le-Fort have another meaning,—and one which seems to upset the fact announced by Arloing, that the pneumo-bacillus liquefaciens was what might be called the bacillus of contagious pleuro-pneumonia. Indeed, in one of the last reunions of the Société Centrale M. Ligmères, adjunct to the laboratory of Prof. Nocard, at Alfort, presented a paper establishing the important fact that this pneumo-bacillus liquefaciens was a *normal host* of healthy lungs.

What may come from this discovery can be well suspected in relation to the theory of Arloing, who claims that the pneumo-bacillus is the germ of contagious pleuro-pneumonia—a fact which is doubted by many and not believed in by Prof. Nocard. Undoubtedly the experiments of Pouilly-le-Fort seem to give weight to the opinion of the well-known professor of Alfort.

CRICOIDECTOMY.—Since the publication of the various processes to perform arytenectomy and in the presence of the numerous cases of failure which have been met with in France, the operation of Muller, Fleming and Cadiot seems to have lost many of its former admirers, and something else had to be looked for, which, if it did not prove a panacea, might at least give a sufficient satisfactory result to justify its admission into veterinary surgery. This appears to have been found in a new operation, sufficiently explained by its own name. It is simple, it is perfectly harmless, it has so far been followed by as many good results as those offered by arytenectomy. It is simple, as it consists merely in the exposure of the cricoid cartilage and

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removal of a somewhat large piece of the inferior portion of this cartilaginous ring. It is harmless, as no complication will follow, no danger for the life of the patient, and from those who have operated upon roaring patients the results have been very satisfactory. I saw an animal which had been operated upon, which previously was roaring loudly almost on the slightest exertion, and when I saw him he was so free from loud breathing that on superficial observation he would have passed as perfectly sound. How the operation of cricoidectomy gives such a result seems to be difficult to explain, except that the diminution in the diameter of the cricoid circle gives rise to a forced elevation of the paralyzed arytenoid, and hence the prevention of its spasmodic interference with respiration.

HORSE-MEAT.—Mr. Devioux, the father of horse-meat consummation, and who, notwithstanding his 75 years, presides today in the society against the abuses of the use of tobacco, must feel quite satisfied at the progress made by his idea of horse-meat as food to mankind, if we are to believe recent statistics. For those who like beef-steaks—of horses—we see that there is now in Paris 200 hippophagic meat markets. This tells how much horse-meat has increased in general use since the 1st of July, 1866—say 30 years ago. In 1872, 5034 horses were eaten in Paris; in 1878, 10,000; in 1894, 21,227; in 1895, more than 30,000.

What shall it be if the queen bicyclette and the automobiles shall have completely taken the place of animal traction?

A. L.

UNIFORMITY OF DEGREE AND EDUCATION.—Upon more occasions than one this publication has sought to devise some means for creating national uniformity of examination and degree for veterinary surgeons. Last winter we advocated the confederation of State boards of veterinary examiners and the foundation thus of a United States Board of Veterinary Medical Examiners as being the only method of overcoming the objection to National legislation, which was considered would

interfere with State rights. It goes without saying that such a result will be achieved in time, because the present system is altogether unsatisfactory to the friends of veterinary progress. Before this it was not possible to have made rules for the government of all colleges teaching veterinary medicine, because they were as various in their methods and requirements as they were numerous. But the co-operative spirit of course extension, the establishment of State laws making the extension obligatory upon those who were reluctant, and other factors accompanying the educational advancement,—all make a uniformity of examination, and a degree which shall express and emphasize that uniformity, imperative at this stage in the incessant march. As contributing to the elucidation of this phase of the subject, we print with pleasure in this issue a communication from a member of our sister profession, who recognizes the chaotic state in which we exist at present, and who has become interested in us by virtue of a comparative position in one of our Washington veterinary colleges. His plan is unique, and bears many good points, and now that the subject is under discussion the REVIEW will be pleased to hear from others who have given the subject thought and have suggestions to make.

DR. LIAUTARD'S HOME-COMING.—On September 12th, Prof. Liautard, who has been sojourning in Paris since last spring, will return to New York, in time to assume his important functions in connection with the American Veterinary College. His vacation, while bringing much needed rest, after nearly half a century of the most active and energetic service in behalf of the veterinary profession, for which he has done so much to advance it from incipiency to a high degree of development, has not been an idle one, for he brings with him some beautiful specimens and plates to be employed in his lectures during the forthcoming session of the college. The readers of the REVIEW have been favored in every issue by a great mass of literary material from him, the most of them translations from the French, Italian, and Belgian journals, while the scientific

editorials that have appeared from time to time are the productions of his ever-active pen. His friends in America, and their name is legion, will welcome his return with heartiness, and trust that his health will be so good for many years that he will not again have to wander from the land which has profited so much by his genius and which shares his affections with his native France. R. R. B.

"BOVINE TUBERCULOSIS; A QUESTION OF STATE MEDICINE."—In another department of this issue of the REVIEW will be found an interesting paper bearing the above title, from the pen of that sterling veterinarian, W. H. Harbaugh, of Richmond, Va. Attention is drawn to this contribution, not because it contains facts unknown to the veterinary world, nor that it advances a theory of a new nature, but for the reason that it is a strong and unique appeal to the consumer to purify the source of his beef and dairy supply, thus lessening his exposure to the contraction of loathsome disease. It is such an article as would read well in the agricultural papers, for the awakening of a general interest to the importance of a subject the facts of which have been proven by overwhelming evidence. Veterinarians in all sections would do well to present the same facts to their constituency through the local press, or when opportunity presents itself to address bodies of citizens upon sanitary measures.

SUPSCRIBERS TO THE REVIEW who have not paid for Vol. XX. are reminded for the last time that we cannot afford to carry them, and they must not expect to receive any further numbers unless the subscription price is at once remitted.

THERE is at Rotterdam and at Antwerp large and important factories, where rejected horses of the omnibuses of London are transformed into excellent preserves of beef and sold on the continent with American labels, It is said that this industry consumes some 20,000 horses (?) a year.

ORIGINAL ARTICLES.

[WRITTEN SPECIALLY FOR THE AMERICAN VETERINARY REVIEW.]

FOOD—ITS AGRICULTURAL AND ANIMAL INDUSTRY ASPECTS DISCURSIVELY DISCUSSED.

BY A. S. HEATH, M.D.,V.S., BROOKLYN, N. Y.

Robert E. Wait, B. A., Private Secretary to the Assistant Secretary of Agriculture, gives a most valuable account of the work of the Department as illustrated at the late Atlanta Exposition, as well also such as may be found in the Department Year Book for 1895. I shall use these sources of information freely in this article. Our domestic food-animals, like our crops, are so nearly associated with agriculture, and are like man so subject to disease, that the Department of Agriculture may properly be regarded as the grand embodiment of *national hygiene.* And yet, justice and truth must broaden its sublime title to *universal hygiene*; for do we not, and is it not our national destiny *to feed the world?* Human hygiene has been aptly defined as the art of preserving health; that is, of obtaining the most perfect action of body and mind during as long a period as is consistent with the laws of life. In other words, it aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote. In a broader sense, it covers the vast fields of our sound and healthy food supplies from every source, from our fields of grasses, and grains, and vegetables, and flocks and herds, and all the products of all of these. For all of these are liable to disease; and the hygiene of food supply presupposed the prevention as well of the various diseases of these as well as the cure. The most hopeful prospect of treatment is the prevention. This prevention as deeply concerns the agriculturist as the physician and the veterinarian. Prevention then, is the philosophy and poetry of the sublime arts of hygiene. The beneficent arts of agriculture lay deep and strong the broad foundations for healthful food-supplies,

while the arts of medicine, comparative medicine, and the other noble arts and sciences all aid in securing a bountiful supply of food, and guard it and its consumers against injury, disease and death. How intimate the relationship of art and science! How beneficent the designs of the Creator!

Mainly, the inspection of exported and imported meats and meat-producing domestic animals intended for human consumption is performed by veterinarians. I do not like the term veterinarian, and shall use the more satisfactory one of comparative physician. The significance is more complete, just and reasonable. I have already made application to the Queens County Medical Society to receive as co-members, physicians of comparative medicine, and trust that at no distant day all medical societies will be thus composed. Who are greater hygienists than so-called veterinarians?

Many of the diseases of domestic animals afflict also man. Hydrophobia, glanders, tuberculosis, anthrax and others belong to this catalogue. And similar work remains yet to be performed before our animal food supply shall have been purified to a perfectly healthful standard. Of these, Texas fever and hog cholera are the serious obstacles to food exportation. The Bureau of Animal Industry, at Chicago, alone employs more than fifty experts in examining samples of meat from hogs slaughtered for the export trade. This evidence of governmental care deserves the highest universal commendation. This act is too noble to be tainted by a suspicion of want of generous reciprocity toward our food-product patrons of Europe. From England we obtained the Shorthorn, the Jersey, the Hereford, the Angus, Guernsey, Devons, Red-Polled, and many other beef and dairy cattle; from France only four importations of the noble Normandies; from Switzerland only one importation of the grand Simmenthals, and of other countries to the domestic animals I need not now refer. National spite is as simple as that of the spoiled child who refuses to eat his dinner from some fancied personal affront. If it were pertinent to this article, it might be shown of how much valuable animal

food-supplies we voluntarily deprive ourselves by refusing to permit the importation of the best food-producing animals of the world. And the worst feature of the spite is, that *the servant* of the people can interpose his *ipse dixit* against reciprocal exchange of the international food supplies of the noblest nations of the world. The self-cut-off nose of a nation disfigures the face of a great people. "It is only on a certificate signed by the Secretary of Agriculture, stating that the inspected meat is free from trichinæ and other parasites, that pork products are admitted to the markets of certain foreign countries. The rules regulating the importation of live stock into the United States are just as rigidly enforced, and it is hardly likely that any of the European diseases can ever gain a foothold with us here." The quotation fortifies my just censure, as it comes from a department report.

To return to our ability to supply food for our own people and for those of Europe who need it, it will only be necessary briefly to state some facts. The American farmers have amply supplied their own average size families, and have sold an abundance for forty millions of citizens, living in cities, villages and manufacturing hamlets, supplying them with grains, meats, vegetables, fruits, eggs, milk, butter, cheese, poultry, and many other necessaries from their farms. And these supplies were the best the world has ever used. These farms sold in 1895 five hundred million dollars worth of products, of which Europe received 79 per cent. The total value of the products for 1895 must have come near three billions of dollars. And gold dollars at that. I here quote from the Report of the Secretary of Agriculture a most significant query: "How can the 42 per cent. of the population of the United States which feeds the other 58 per cent. and then furnishes more than 69 per cent. of all the exports of the whole people be making less profits in their vocation than those whom they feed, when the latter supply less than 31 per cent. of the exports of the country?"

The decrease of cattle of the United States for the past fiscal year was about two and a half millions. The loss of such

an immense product supply of animal food in a single year is a strong argument for the admission of healthy foreign stock, and especially as their average value far surpasses those of our own animals.

We have in the noble prairies of the thirteen States, two territories from North Dakota and Ohio to Texas, 300 millions of acres of land suitable for the varied production of farm crops, besides the almost unlimited increase in the raising of food supplying animals. This means vast profits in diversified agriculture wisely divided among the possible products. These are fair proportions of corn, wheat, cotton, grass and cattle. The wasteful ranch business is an *ignis fatuus*. It has proven a false, foolish, fitful light, and has lured too many to ruin. The hope of suddenly acquired riches blinds the eyes of prudence. And here again I quote from the Year Book of the Department of Agriculture sound advice to the farmer: "The advantages of raising enough grass to feed a sufficient number of cattle to eat the corn on the farm have been lost sight of. It has demonstrated both by experiment and practice that the farmer who sells beef, pork, and mutton that he has produced from corn and grass raised and fed on the farm makes more money per acre of his land and per dollar of his capital than one who grows only wheat or corn or cotton. It is not necessary to entirely discontinue raising these crops, but if we are to produce a surplus to be sold in foreign markets, it is best to export that surplus in the most condensed and marketable form, as meat and animal products, that people want to buy, rather than in the original crude and bulky state, that people do not want to buy." So to speak, we manufacture out of raw material products that command a profitable market. All classes should be laborers, earning more than they spend. True wealth is the surplus of our needs enjoyed for the longest period in health and happiness. Added to this is the true nobility of manhood, doing good to others. This is Christ-like.

ON THE EXTERMINATION OF THE CATTLE TICK AND THE DISEASE SPREAD BY IT.

By Dr. Cooper Curtice, of Moravia, New York.

Read before the Virginia State Veterinary Medical Association at Norfolk, Va., June 24, 1896.

Gentlemen of the State Veterinary Society of Virginia:

I am honored by your President in being invited to address you upon one of the two most important epizoötic diseases now to be found among cattle in the United States. I prefer to present it to you under the name "tick fever," as the tick, *Boophilus bovis*, is, as far as is yet known, the most important, if not the only, factor in its transmission. You will recognize by this name that disease to which more names have been applied than to any other, a fact which indicates the lack of precise knowledge concerning it, held either by the laity or professional, viz.: "Southern Cattle Fever," "Splenetic Fever," "Spanish Cattle Fever," "Texas Cattle Fever," "Carolina Cattle Distemper," "Mexican" or "Indian Cattle Disease," "Distemper," "Bloody Murrain," "Red-water," "Hæmaturia," "Splenic Fever," "Hæmaglobinuria," "Tick Fever," "Acclimatization Fever," etc.

It is the relationship between the tick and the disease and he means of eradicating them from Virginia and the United States to which I invite your attention. Repeated experiments by the United States Department of Agriculture, by your colleagues, Harbaugh and Niles, of this State; by Dinwiddie, of Arkansas, and, on a larger scale, by the stockmen of the country, have shown conclusively that the tick does give the disease to susceptible cattle. Among all other experiments made to demonstrate another mode of infection, not one has succeeded, excepting the direct transmission of blood from previously infected, but healthy cattle, to susceptible cattle. Since this mode of infection is necessarily rare or never obtained by other than human agencies, it may be passed by as of secondary value in the transmission of the disease.

Permit me to repeat, ticks are the only known means of spreading the disease; if so, is it not self-evident that to prevent the disease spreading the distribution of the tick must be further restricted and finally the species be exterminated?

In the report of the United States Department of Agriculture on Texas fever, 1893, the question as to there being another mode of infection in those States where the disease is more or less permanently located, is left an open one. Nor can it be settled until some area is found in which the cattle are free from ticks, and in which cattle brought there die of the disease without having been infected by ticks. When such a place is found the study of the disease may be taken up just where it has stopped, and new causes or methods of transmission found. This leads us to the question of climatic, telluric or other conditions which may be supposed to foster and spread the disease, aside from the parasite, which we know distributes it far and wide.

The prevalence of the disease in the Southern States in spring, summer and autumn among cattle which are merely moved from farm to farm, or at the outside not over a few miles, is a strong argument that neither climate nor soil has aught to do with the spread of disease, for they are the same. Mr. A. W. Bitting, in Bulletin No. 28 of the Florida Agricultural Station, 1894, describes an outbreak in a herd of cows, bred by the owner near Tallahassee, and kept sound until moved to a tick infested farm nearby, where the "land and water were about the same," and all became affected.

In Georgia there are enormous annual losses from red-water among cattle, which are merely moved about in neighborhoods and farms recognized as infected, although their soil and water privileges are identical with neighboring places where no cattle are lost or whose cattle die when moved.

In your own State there are adjoining counties in which murrain is known or not known; farms which have never lost cattle, while other cattle brought to them or taken from them, frequently die. Nor is it necessary to move them from a high-

land to lowland or from the north to the south. The movements may take place in any direction and the results be the same.

In this disease two classes of cattle must be constantly borne in mind; those that have become unsusceptible and those that are susceptible. The death record in infected localities indicates the presence of infection and of susceptible cattle, and when they are raised nearby that the soil and climate which is the same for all has no more immediate relation to the disease in Florida, than it would have on neighboring farms in New York. When spread the disease will break out in either; when confined there will be no outbreak, although the means of spreading be close at hand in either.

Counties and farms in this State and others have been infected and reinfected and are to-day as free from disease as any in Maine, though south of, or north of, or east of, or west of others, or higher in altitude than others, or lower than others and containing more or less bottom lands than others, and growing more or less pine or oaks than others, and watered by standing water, running water, etc., etc.

Further, when outbreaks are closely scrutinized the pestiferous tick is always found. In the murrain counties, Buckingham, Patrick, Pittsylvania, Gloucester, Lunenburg or others, cattle-ticks abound. When Prince Edward County before the war lost her cattle by murrain, the ticks, I am informed, were there. Since then they have disappeared and cattle are no longer killed by them, excepting as farms are reinfected, as may occur anywhere.

If, gentlemen, you will ride with me east, west, north or south through this State and inspect farm after farm and make inquiries you will come to no other conclusion than that this disease of many aliases is coincident in distribution with the tick, irrespective of altitude, topography, drainage, soil, food, verdure or climate. Some or all of these factors may influence the spread of the tick, but not the coincidence of the tick and the disease.

Let me explain what I mean by disease in this instance. I not only include the paroxysm of fever that an animal may have, but the changed condition of its system, which permits it to raise the ticks with impunity. In this sense a perfectly healthy cow for all other purposes might contain blood which at any time would disease others under proper conditions. All blood for this purpose must be considered in a pathologic condition; it is altered from the normal. There is then, so far as is yet known, nothing in the climate or soil of the so-called permanently infected country which may lead us to believe it so.

Both history and experiment indicate the contrary. In the 16th, 17th and 18th centuries this country was colonized by two classes of people, who brought their cattle with them. You well know that the Spanish colonized the West Indies, Florida, Mexico, Texas, New Mexico and California, and the North European nations the thirteen colonies. The Spanish endeavored to push northward along the Atlantic coast or, at least, to hold the southward advancing pioneers in check. Until the cattle of the Spanish began to mingle with those of the English to the north those of the latter prospered and multiplied. After that cattle died from tick fever and have continued to die in numbers proportional to the movement and number of cattle involved. This occurred as early as, if not earlier than the 18th century. I believe that Carolina cattle were infected from Florida or Cuban cattle. Virginia cattle were certainly infected by Carolina cattle and also, I believe, by cattle introduced by coastwise traders, who traded in barter, between Cuba and other West Indian Islands and Maine. The disease had become so prevalent in your State by 1750 that special legislation directed against it was necessary. This legislation has been re-enacted and revised at intervals until the law of the last session of the legislature.

As the Spanish cattle spread over Texas, and when the great markets of the North in about 1840, or even before, began to require beef, the Texans were driven over trails northward and spread disease along their route. The disease from these centres slowly spread unhindered by law or man until it was checked by

the laws of climate, which restricted the distribution of the spreader of the disease.

The Spanish invader upon this continent was responsible for many things. Could he have planned, as diligently as he did inquisition methods, to have left behind him a cattle plague which would harass his foeman for ages, he could scarcely have found a better means than the tick.

The experiments of the Bureau of Animal Industry show as conclusively as may be, that no disease-giving property is eliminated by cattle upon the ground. The matter up to now, then, lies this way. This cattle plague is nothing more nor less than the result of an invasion of this continent by the parasitic tick, which cattle carry with them.

Is this invasion permanent or temporary? Mr. H. J. Wing, of the Experimental Station in Georgia, picked and killed every tick on his cows in 1892. Since then he has had none. Although he bought ticky cows, he confined them in the stable until he had cleaned them. On that farm cattle from all parts are mingled and none die. Last year he cleaned an adjoining farm of ticks by regular hand-picking, permitting none to escape. Although the cattle went to pasture daily the process occupied but little time, three times a week for a couple of months, although the observation was continued longer.

The invasion of these farms was, therefore, but transient. The invasion of many counties and farms in Virginia, although well within the permanent area, is well known to have been transient. There is no farm in this State or any other State, but that is transiently infected by ticks. The word permanent as it relates to ticks has no place in the American vocabulary. All ordinary herds may be freed with comparatively little trouble by confining animals and hand-picking. If they are kept on an enclosed farm regular persistent hand-picking will free them. And the labor is not so great as it seems. If cattle roam upon commons, then all owners must keep their own cattle free. This will be found to be the direct effective means for freeing all cattle in Virginia. If, however, enclosed land is abundant, the ticks

may be kept from cattle by picking off those on them at the time and then turning the latter on to unaffected pastures, hitherto unused by cattle. Thorough greasing of the hairs by cotton-seed oil, lard or kerosene will prevent the little ticks arriving at the skin. Destruction of the ticks by burning the land in spring, or by plowing will also assist the hand-picking. In Virginia and most other States I believe that there is little economy in dipping cattle. Nearly all herds are too small to permit the outlay. Where it must be resorted to, those practicing it must know that the operation must be carried on regularly as often as need be until it is quite sure that the cattle pick up no more on the pastures.

To restrict the advance of the disease northward in summer time the United States annually quarantine the cattle from certain southern states or portions of them, not permitting their transportation northward, excepting under regulation, which keeps them from other cattle. This quarantine, if as effectually carried out in other States as it is now in Virginia, is very efficacious. But the United States should not seek to perpetually quarantine but to contract the quarantine and thus lessen the menace at every point. It has shown that the means of transmission is a remediable one. Let it do its part in applying the remedy. It is clearly within its province to continually investigate the border line between the quarantined and free areas and proceed to learn the exact condition of infection, to study the effect of local laws and customs upon its spread, to instruct the cattlemen at certain points as regards the suppression of the ticks, and to change the line in accordance with the facts and needs arising.

Whatever the future may show as to there being another means of producing the disease in the South, the Bureau of Animal Industry has shown that as soon as the ticks are removed from sections of country, the cattle from these places are no menace to others and, therefore, that the quarantine line must be, in so far as it is practical in being compatible with political boundaries and natural barriers, coincident with the edge

of the area infested by these parts. If for no other reason than those of uninterrupted traffic, the cattlemen of the infested area should make haste to exterminate the tick.

This State has in its last session of the legislature passed a contagious disease act, which will prove very efficacious in preventing the spread of the disease in the free area. It may apply to the uninfected territories within the quarantined area, but the fines are so excessive, that complaints will scarcely be made. For instance, in those localities cattle with ticks are virtually quarantined upon their owners' farms, for there is a fine of from $100 to $500 for permitting them upon the highway or commons.

Could the quarantine of ticky cattle upon infested farms be rendered effective, the great question for Virginia would be more than half settled, for no owner would permit his cattle on the highway before they were cleaned of ticks; and being in constant danger from the ticks spreading from his farm, he would be induced to remove them. When the State is ready to remove the ticks, farm quarantine must be resorted to. I believe that at present a light fine of from $2 to $5 per head for cattle with ticks found on the highways, unenclosed lands or commons, and impounding them until all are cleansed and the fine paid, would be far more efficacious than the high fine imposed by the present law, and which is necessary to prevent violations of the State quarantine line.

Fellow veterinarians, your duties in this instance are to do all in your power to keep up a perfect quarantine between the area partially infected and the free district. Those of you who live within the infected district owe it to your patrons to instruct them as to how the disease is spread, to show them, even if it is necessary to take some farm as an experiment, how to rid that farm of its ticks, and more than all to keep the public market places and cattle ranging at large free from ticks. I have found that cattle owners are only too willing to fall in line when once they are convinced that it is of use. You are to take every means at your command to show its use.

By means of the wide-awake Virginia veterinarians, I believe that in less than five years, tick-disease or murrain in this State will be an unknown quantity. You owe it to yourselves and to your fellows in other States to show what may be done by a few willing, courageous men. The task is a great one, but if you do what you find to do, it will be accomplished.

I look most eagerly for the cleansing of even a certain portion of the infected territory under the direct intention of man, for it opens the way to pushing the ticks back to the Spanish isles and Mexico, and liberating cattle from disease and pests and the farmer from untold money losses. Let your war-cry be "Death to the ticks."

BOVINE TUBERCULOSIS, A QUESTION OF STATE MEDICINE.*

By W. H. Harbaugh, V. S., Richmond, Va.

The discovery of the tubercle bacillus by Robert Koch in 1882 at once and effectually put an end to all disputes and controversies as to the cause of tuberculosis in its various manifestations, which had agitated the minds of medical investigators up to that time.

Koch's discovery also established the fact that tuberculosis in man and the lower animals is due to one and the same cause, no matter how much the symptoms and lesions may vary in the different species, and it may be pointed out that this disease attacks more different species than any other disease, although some species exhibit a much greater susceptibility to it than others, and while some species show a marked degree of insusceptibility by the ordinary means of transmission of contagion, they succumb to inoculation. But man and the bovine species above all others seem to be the special marks for the attacks of this scourges and hence, the relationship of the disease in these two species has received a greater amount of study and investigation owing to the fact that a very large proportion of the food

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products of mankind is derived from from the bovine race.

Koch's discovery having established beyond all question the contagious and infectious nature of tuberculosis, it opened a broad field for scientific investigations, and the starting-point of all these investigations was the complete confirmation of the fact that the bacillus of Koch being the causal agent of the disease, tuberculosis could not start or exist in the absence of its specific germ, and the point was forever settled, that in order for man or any other animal to have consumption, or any other form of tuberculosis, the bacillus of Koch must gain entrance into the system, and there find proper lodgment in order that it may commit its usual havoc. After these facts were ascertained, the questions of paramount importance were to ascertain the general modes of infection, or tranmission from one to another, and the safest and best means of avoiding the dangers of infection.

Hundreds of investigators entered the field of experimentation, and the results of their work have startled and agitated the civilized world. For obvious reasons, the experiments have been confined to the lower animals, but the disease being the same and due to the same cause, the facts ascertained apply in all respects to similar conditions in man and the lower animals.

It has been positively shown by thousands of experiments that the disease is transmissible from one animal to another of the same species, and from one species to another. It has been proven that no matter how the germs may enter the system, whether inhaled, taken in with food, or inoculated,the disease is liable to ensue ; tuberculosis in various forms has been produced in a large percentage of such experiments. A tuberculous animal placed among animals communicates the disease with certainty to animals previously healthy. Milk from an affected cow fed to cats, calves, hogs, guinea pigs, etc., produces the disease in them. Milk from an affected cow inoculated into other animals produces the disease. Sputa coughed up by man and carelessly spit out, has been licked up and devoured by cats and dogs and produced the disease in them.

The certain transmission of the disease from one species to another led to special investigations in regard to the danger of mankind devouring the meat and dairy products derived from the bovine species, and the result of such experiments and investigations is an accumulation of a mountain of facts which furnish conclusive evidence of the positive danger to man from this source.

Dr. Burch in a paper read before the New York State Medical Society, pointed out the fact that in countries like Australia and the Sandwich Islands, consumption among the people did not exist till after dairy cattle were introduced. He also called attention to the fact that consumption prevails in all dairy countries, but does not in countries where dairy products are not derived from the bovine species. He further says: "Morocco, where there are no European dairy cows, is exempt from tuberculosis; while in Spain and Portugal, where dairying is carried on in the European style, tuberculosis prevails."

There are many instances where the disease in man can be directly traced to the infected food, but only a few instances will be given here.

"Dr. Washington Matthews spent twenty-one years among the Indians. He states that their food is the primary cause of tuberculosis among them, and that when the supply of fresh beef is liberal, the death rate from consumption is highest." (Census of 1880.)

"Dr. Treome describes the poor, emaciated, diseased animals furnished to the tribes of northwestern Indians—how they eat the liver, tallow, and entrails, raw and fresh, and how the carcass is dried, pounded, packed in skin, to be eaten later uncooked, even though these animals died of disease. The Indian mortality from consumption is fifty per cent. of all deaths, at several points, while at Crow Creek, Dak., fifty out of the total Indian population of twelve hundred die yearly of consumption and scrofula." The foregoing quotations are from the report of the Massachusetts Cattle Commission, which gives many facts in regard to this question.

Great Britain in 1890 appointed a Royal Commission to inquire and report the effect on human health of food derived from tuberculous animals. The commission reported on April 10, 1895, after devoting nearly five years and spending $90,000 in the investigation of this question. The report of this commission fully confirms the work done by other investigators, to the effect that food derived from tuberculous animals is dangerous and liable to produce the disease. The report says: "No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter."

Dr. Martin, writing for the commission, says: "The milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary. All the animals inoculated showed tuberculosis in its most rapid form." Dr. Martin and Dr. Woodhead "had occasion to use milk from a cow that had tuberculous disease in one-quarter only of the udder, and they found the milk from the other three-quarters to be perfectly harmless on inoculation; but the mixed milk taken from the four teats was to all appearance just as virulent as the milk from the diseased quarter. Butter, skimmilk, buttermilk, obtained from the milk of a cow having tuberculous udder, all contained tuberculous matter actively injurious to test animals." This fact shows the extreme danger of using milk from cattle not proven to be positively free from the disease. One or two cows in a dairy may contaminate the milk from the whole herd simply by mixing the milk from the different animals. "Both Dr. Martin and Dr. Woodhead insist that no tuberculous animal of any kind should be allowed to remain in a dairy."

Up to a recent period the opinion prevailed that it was only milk from cows with tuberculous udders that was extremely dangerous, but the experiments of Prof. Ernst, of Harvard University, and many others, have demonstrated the fact that milk from a tuberculous cow may contain the germs, even though the udder is absolutely free from the disease.

"In the case of milk, the Royal Commission were of the opinion that nothing short of boiling would destroy the con-

tagious principle; and it is a well known fact that in boiling milk its constituents are so thoroughly changed that it is not as useful as a food, especially for infants, as that which has not been subjected to this great degree of heat." (Mass. Cattle Com. Report.)

Hence it is plain that the only means we have to insure a safe milk supply to consumers is the inspection of the source of the milk—the cow. The examination of the milk itself would be a farce, for the simple reason that the time required for microscopical examinations and chemical analyses of all milk sold would make such tests utterly impossible and impracticable. We need not fear intentional or criminal adulteration of milk by the dairyman; he will add nothing harmful to human health; it is the cow we must fear, and in order to make inspection of benefit to humanity, the cow should be ascertained to be free from tuberculosis beyond all doubt. Happily for mankind, this is possible and practicable, and is being done all over the world with perfect success. The tuberculin test applied to the cows at regular intervals will enable the disease to be kept out of the herd. People who have no experience with tuberculin may talk against it and argue against it, but their idle boasting, wild statements, and pretended knowledge do not do away with the fact that tuberculin is a reliable diagnostic for bovine tuberculosis, and has been proven to be such in proper hands so invariably that all civilized governments, including our own, employ it in their official work in connection with tuberculosis. Those who profess to be opposed to tuberculin often assert that they can produce a reaction by the injection of any or many toxines, they assert that they can get the same reaction with different chemicals, etc., but they lose sight of the fact that the reaction following the injection of tuberculin only occurs in an animal affected with tuberculosis, and no reaction occurs in an animal free from that disease. But what is the necessity of wasting words about the idle and ignorant babble of people who know nothing about the practical work of the tuberculin test, when it is only necessary to mention the fact that when animals are con-

demned by the tuberculin test, the post-mortem examination proves that they are affected with the disease ; the fact that veterinarians who condemn cattle as tuberculin indicates are always willing, and even anxious to demonstrate the truth of their diagnosis is sufficient to combat all the nonsensical assertions of those who oppose tuberculin. On the other hand, those who oppose tuberculin would not dare to condemn and attempt post-mortem confirmation on account of a reaction following the injeotion of anything.

Bovine tuberculosis is a question that must be handled as a question of State medicine by the authorities, sooner or later. There can be no doubt of the contagious and infectious nature of the disease, and hence the State and local boards of health should have their powers enlarged to be able to handle the question. In the meantime there is no excuse why consumers of milk should continue to daily run the risk they do now, when it is only necessary for the city council to pass an ordinance creating the office of official dairy inspector, whose duty it should be to test all cows in dairies supplying milk to consumers, and see that no milk is sold which does not come from cows proven to be free from tuberculosis.

Tuberculosis amongst our dairy cattle is not a new disease. For the past eleven years the writer has frequently called public attention to it, and has repeatedly referred to its great prevalence among the dairy cattle of this vicinity. Fully fifty per cent. of the milch cows in this vicinity are affected; and this estimate is based on facts ascertained in the actual examination of many cows. That the disease is increasing there can be no doubt, and something should be done by the authorities before matters get worse. There can be no doubt that to exclude all the tuberculous cows from our dairies would be a hardship on the dairymen, but it is a hardship that must be faced, because it is a crime, and a fearful one, to allow the infectious matter of this terrible scourge to be daily scattered to our citizens, and fed to innocent children and delicate adults. It is the duty of the authorities to protect the health of the

public, and if the mothers of children knew or realized the certain danger they are incurring by feeding cows' milk to their children, they would demand that the authorities take immediate action. No person claims that all cases of human tuberculosis come from cattle or their products, but it is a settled fact that tuberculous meat and milk will cause the disease, and hence it is a question that comes under the head of preventive medicine as a general cause of disease in mankind, and one cause that can be controlled.

It is a great error to imagine that the disease is confined to thoroughbred or high-bred cattle. The disease is to a great extent spread from breeding farms, and, undoubtedly, the thoroughbred cow introduced the disease, but one cow as well as another may contract it from an affected cow, and all that is necessary to spread it is to introduce an affected cow into a stable where there are other cattle, and the disease will spread alike to the high-bred, low-bred, old-field cow and scrub.

Tuberculosis does not confine itself to breeds or families, but the milch-cow is far more susceptible than any other kind of cattle. The breeding-farm is generally a hot-bed of the disease, and the State authorities should take hold of this part of the question at once. All cattle on such farms should be tested, and the affected should be quarantined. Many a dairyman having previously a healthy herd has his whole herd affected by the introduction of a single cow from one of the breeding farms. The public should be protected against infected milk from the dairies, and the dairyman should have protection against infection from the breeding farms.

Bovine tuberculosis is spread by contagion; it is the rarest thing imaginable for a calf to be born with tuberculosis; slaughter-house statistics prove the absolute correctness of this assertion. There can be no doubt that human tuberculosis is spread the same as bovine tuberculosis, and that heredity plays but a small part in the propagation of the disease, but it will be some time before the majority of physicians will believe it. If physicians

had the same opportunities for investigation as the veterinarian they would soon be convinced.

After investigating the subject of bovine tuberculosis and referring to the proofs of the small part played by heredity, and the great part played by contagion, Dr. H. Scurfield, in a preface to Nocard's work on "Animal Tuberculosis," says: "It seems not unreasonable to suppose that the same is the cause for human tuberculosis, and that, if the children of tuberculous parents were protected from infection by cohabitation or ingestion, the importance of heredity as a cause of the disease, or even of the predisposition to it, would dwindle away into insignificance."

A vigorous and unrelenting war should be made against animal tuberculosis as one of the great causes of human tuberculosis, and this war should be a campaign of extermination as well as of education.

DISEASES AND INJURIES OF THE FOOT.

By John Scott, V.S., Peoria, Ill.

A Paper read before the Illinois Veterinary Medical Association.

The horse being an animal whose usefulness and value depend almost entirely upon his locomotive powers, and the foot being one of the principal organs of locomotion, demands of us, as veterinarians and humanitarians, that we pay particular attention to the care of it in health in order to preserve it in a natural and healthy condition, as well as to the cure and treatment of it when suffering from disease or injury.

I shall not, however, attempt to enter into a discussion of all the diseases and injuries the foot is subject to (for they are legion), but will only speak of a few of the more common that are encountered in every day practice.

It is not necessary for me to enter into a description of the foot as a whole, nor of its component parts, for these you are all as familiar with as I am. Suffice it to say that there is as much

difference in the general appearance, healthfulness and susceptibility to disease among horses feet as there are in different types of horses.

Thrush.—The first of the diseases I will mention is "thrush," an affection characterized by the presence of a dark-colored, fœtid secretion in and around the frog, sometimes very slight, at other times very abundant, attacking and destroying the tissues, causing sloughing of the frog, and accompanied by more or less pain, causing lameness. This affection is nearly always caused by neglecting to keep the feet in a cleanly condition, allowing animals to stand in damp and dirty places, especially in urine and manure, as is often the case, although some horses will become affected without being exposed to such exciting causes. Why it is hard to say. The treatment consists in perfect cleanliness, paring away all ragged and diseased parts, washing the parts thoroughly with a solution of potassium permanganate, or hydrogen peroxide, then filling the cracks with calomel, kept in place by piedgets of oakum or cotton, and repeating as often as necessary.

Corns.—Another very common trouble is "corns." They are the result of bruises, involving the structures of the sensitive sole in the triangular space between the bars and wall at the heel of the forward foot and are nearly always caused by improper shoeing. They always cause more or less soreness and lameness, and sometimes suppuration occurs when the exciting cause has been severe and prolonged. The radical cure is in the shoeing, and if this is properly done corns would be rare indeed. To relieve them when present, pare away the horn to relieve the pressure and poultice the foot to reduce fever and thereby relieve soreness.

Nail Pricks.—These vary from the slight injury which requires little or no attention to those of such a serious nature, that death often supervenes, owing to the excessive local alterations and the sufferings accompanying it. The severity of the injury depends partly upon the nature of the foreign body entering the tissues, but principally upon the particular part or

parts involved. Ordinarily all that is required in the way of treatment is to pare away the horn from around the seat of injury to allow the escape of any discharges that may occur, and either apply a poultice or inject the wound with some antiseptic solution, but should the foreign body have penetrated the articulation or injured the bone, then we have indeed a serious case, and one that will tax the veterinarian's patience, skill and ingenuity to the utmost. It would be impossible and absurd for me to attempt to outline any particular mode of treatment that would be applicable to all such cases, as scarcely any two could be treated in the same manner. Two ideas, however, in the successful treatment of such cases are paramount to all others. The first is, to allay the extreme inflammation that is always present. The second to arrest the flow of synovia as quickly as possible. Poultices and warm fomentations are the best agents to allay inflammation, but both tend to increase the flow of synovia, so it is a pretty hard matter for a man to know where he is at, and it is only by judiciously exercising good horse sense that we can be successful. My favorite prescription, after discontinuing the warm applications, to arrest the flow of synovia, is a powder composed of equal parts of tannic acid, dried alum, and gum arabic, applied to the opening, and retained there by pledgets of oakum and bandages, and here another difficulty presents itself in the fact that if the flow of synovia is dried up too rapidly, which this mixture will do, the result will be, the formation of one or more abscesses, which will discharge their contents, mixed with synovia, around the coronary band or heels. Patience and perseverance, however, will generally succeed in healing those. Such cases are always followed by severe and prolonged lameness, which can only be overcome by long rest and repeated blistering.

Navicular Arthritis.—This is an affection seldom met with in horses used for slow work and draft purposes, but is one of the most fertile causes of lameness in the light harness horse, especially among those used in cities. As its name indicates, it is an inflammatory affection of the navicular joint, of the

structures entering into its formation, or of both. Various theories, all having their admirers, have been advanced as to the particular part or parts of the joints which are involved in the diseased condition, the causes, etc., some claiming contraction of the hoof, others sprain of the perforans tendon, while others advance the theory that it is due to rheumatoid diathesis. You all know the old saw, "when doctors disagree, who shall decide?" I shall certainly not attempt to, but will simply say that whatever the primary cause may be, the exciting cause is from concussion, caused by hard or fast work, over hard roads or pavements as evidenced by its much greater frequency where such conditions prevail. The symptoms attendant upon its first appearance are generally rather obscure, and may be said to be both negative and positive, the negative symptoms being the absence of disease or injury to any part of the limb. This being the case, would limit the seat of the disease to the foot, and in the absence of any diagnostic symptoms in that part, it is well to use cocaine, hypodermically administered over the posterior branch of the plantar nerve, which will generally enable us to make a correct diagnosis. If the trouble is of recent occurrence, rest, with the application of a poultice, followed by a blister around the coronet and heels and the use of a shoe with flat toe and raised heels for some time will very often effect a cure. But if the trouble has been present for some time, the safest and surest way to overcome it is by the operation of neurotomy, dividing the posterior branch of the plantar nerve. This will prove successful, I believe, in at least ninety per cent. of such cases.

HEAT AGAINST MICRO-ORGANISMS OF MILK.—Dr. J. Forster, of Amsterdam, has prepared the following table as the result of a large number of experiments on the time and temperature required to destroy the micro-organisms of milk: 131° F. for four hours; 140° F. for 1 hour; 149° F. for 15 minutes; 158° F. for 10 minutes; 176° F. for 5 minutes; 194° F. for 2 minutes; 203° F. for 1 minute.

REPORTS OF CASES.

ANGINA PECTORIS IN A PUG DOG.

By A. LIAUTARD, M.D., V.M.

The affection which is the subject of this communication is, as far as my researches show, very rare in animals. So much so, indeed, that I have failed to find a single case recorded among a large number of veterinary journals at my disposal. In fact, the disease seems so much ignored, in veterinary literature, that, with the exception of Williams, I see no mention of it in any of my French or English books on equine or canine pathology. Is it because, after all, angina pectoris is scarcely an affection proper, that it is more the manifestation of organic internal diseases, or, again, that it is so rare that it has not been recognized, and on that account failed to occupy in veterinary pathology the place that it has in human medicine?

Be this as it may, I must acknowledge that, though I am no longer a beginner in veterinary practice, and, though I have had a large experience in canine pathology, I had great difficulty in arriving at a positive diagnosis, which, to my sad personal feelings, I confirmed by post-mortem, my diagnosis being based on careful comparison made of the symptoms I had the opportunity to observe and those so well described in Pepper's "System of Medicine."

The report of the case may appear long, but my excuse in making it such can be better appreciated in taking into consideration the fact that the subject was a great pet of mine, and that the close observation to which I submitted him, permits me to describe his symptoms minutely, and present some facts of interest in the history of the disease, which I hope may prove advantageous to my *confrères*.

"Punch" was a well-bred dog, about six years old, largely developed, weighing about 13 kilos, with unusual expression of features, playful, far more intelligent than is usual among animals of the same breed, and he had been in my family for some five years, where he was a great pet. He had never been sick, was always ready to play, to enjoy a good run or a long walk.

On a few occasions during the years 1893 and 1894, he showed sharp difficulty in breathing,characterized by the sudden appearance of symptoms of choking, which lasted for a few

minutes, but which were readily relieved by strong friction, a kind of massage of the throat. As he was short-necked, and had a very short nose, I attributed the trouble to a spasmodic occlusion of the glottis, and when asked the cause of this trouble, jokingly answered that "he was trying to swallow his tongue." Those attacks never lasted more than a few minutes, and would sometimes not occur for weeks after weeks.

During the summer of 1895 I took him abroad; he was very sea-sick, but arrived safely in Paris, securing lodgment in a fashionable quarter of the gay city, where he was obliged to go up and down four pairs of stairs, two, three and four times a day. At first he made those trips willingly and freely, running both ways without the slightest appearance of disturbance. About the first part of June of this year he seemed to be less willing to go out. One trip in the morning, another in the evening, were about all that he cared to make; and, if called out more, it was not with the same gaiety that he would allow his harness to be put on him. He began also to get tired quicker in his walks; going upstairs became painful to him, and often he would take a rest when half way in his ascension. At about this time, when returning from a walk, or even during the day, he would lie down on his left side, somewhat restless and resting his left ear on the floor; which made me suspect that he had some earache, perhaps an incipient catarrh. A little oil of almonds, with laudanum, introduced with a little cotton, in the ear, would at first give him relief, but soon this proved inefficacious and the ear remaining perfectly clean I looked for another explanation of the trouble. I then examined his teeth; they were in fair condition; he had a certain odor from the mouth; but as he was so restless and strong, and being unable to examine him to my satisfaction, and suspecting a carious back tooth to be the cause of his evident pain, I took him to Alfort, where his teeth were found healthy and his ailments attributed to rheumatism.

By that time the symptoms had assumed a very severe aspect, the disease made rapid progress, and all its manifestations were easily recognized. Sometimes starting from the house gay and lively, he would go down-stairs well, run or walk a short distance as usual, and then, of a sudden, his neck would begin to swell, his body arched, his tail hanging down, walking with his head down stiff; a general stiffness all over, but more marked in his foreparts, panting severely, roaring loudly, with his tongue bluish and protruding, saliva flowing from the

mouth. If he had a chance to lie down he would do so in a semi-sternal position, with his body *always* inclined to the left and his head slightly twisted, resting flat on the left ear. He would then stay for a few seconds, then get up, move about in great agony and lie down again; the whole front part of his body, principally the muscles of the neck, seemed to be stiff and hard, and yet they could be rubbed hard without any manifestation of soreness or pain. If one tried to raise him by his forelegs he sometimes screamed with pain. On one occasion I raised him by the hind legs; he also screamed with agony. These spells, which at first lasted but a short time, soon increased in severity, and took between one and two hours before everything would gradually subside and left him exhausted. In the beginning he had but one, then two, and later on three and four attacks a day. Occurring after exercise, they soon even took him while at rest, in the room, during his sleep. The slightest excitement brought it on sometimes.

One morning, when he was lying near my bed, I had an opportunity to watch him—stretched on his left side. I observed that during his sleep, he had twitching motions of one foreleg (the left), then the hind legs began to move by jerks, the neck also became affected; during his apparent sleep he was constantly lapping with his tongue in and out of his mouth. After an hour of this condition he suddenly got up, moved about, ran under the pieces of furniture, moaned and grunted, and there came all of a sudden the fearful manifestations of choking, which made his general appearance so frightfully painful.

His general condition of health was so good when free from his paroxysms, his appetite so good, my inability to recognize by careful auscultation any organic trouble of the thoracic organs, made me unwilling to entertain the idea of an incurable disease, and I placed him under the various forms of treatment (palliative, it is true) recommended in human medicine. At first the inhalations of nitrite of amyl seemed to give him some relief; chloric ether, belladonna, digitalis, cocaine, local applications—all were used, but none gave a satisfactory or permanent result.

The symptoms kept on increasing in severity; he was no longer willing to walk, he had to be carried up and down those stairs which a few weeks before he so gaily paced and ran; he no longer was willing to run on the long balcony, which he had so much enjoyed; he feared to have the slightest excitement.

I was brought to the sad but imposing obligation to destroy him. I chloroformed him—one of the most painful acts of my long veterinary experience.

My diagnosis of angina pectoris, due to cardiac affection, was confirmed by the post-mortem examination I made of him. With a perfectly healthy anatomy, his heart was hypertrofied nearly twice as big as normal size; the walls of the right ventricle were soft and flabby and the valves of the two auriculo-ventricular openings the seat of comparatively large granular deposits.

BARIUM CHLORIDE.

By Robert W. Ellis, D.V.S., New York City.

Having read several scientific articles on the use of barium chloride, in the veterinary journals recently, none of which seeming to *positively* recommend its use heartily in every day practice, but all seeming rather chary about so doing, and having met several of my *confrères* who seem to have so profound a respect for it as to leave it severely alone and be quite content with talking about it, I feel as though a few words as to its practical use would not be amiss, and might encourage the few who have not already adopted its use, to do so.

Having used barium chloride on about three dozen cases of flatulent colic of the worst order (those met with in large draft horses) and on quite a number of cases of milder form among the lighter order of business horses, with uniform success, and not having a single result from it to regret (although on many occasions almost no opportunities for asepsis were practicable) I feel that I cannot speak too well of it.

As I find occasion to use it almost every day at least once and sometimes several times, I carry with me at all times four drachms of a twenty-five per cent. solution, so that when occasion demands its use, I can, without delay, inject one drachm into the jugular, having first (if the time and the position of the patient permits) clipped and antiseptized the seat of injection; if, on the other hand, neither time nor the patient's position permits of the more thorough process of clipping and cleansing, I simply saturate the hair over the seat of injection with a mild carbolic solution before injecting.

While I thoroughly appreciate the fact that it is a veterinarian's duty to his patient, his client and himself to exercise cleanliness on all occasions, and to conduct all operative procedures (no matter how simple) as nearly on aseptic principles

as is consistent with practicability, yet I must admit that on a few occasions, when I have not been able to use aseptic measures in the introduction of barium chloride into the jugular, when I have felt sure that I would lose my patient without its use, I have injected it and taken the chances, with no worse result than that of a slight swelling around the point of injection the day following, which is preferable to a cadaver in place of the patient, especially as on each occasion when this swelling has appeared it has yielded readily to an application of cantharides ointment. In the great majority of cases, however, where the ordinary antiseptic precautions are used, no swelling whatever appears at the seat of injection, or anything to indicate that an injection has been made at that point.

Another point in favor of the use of this compound is, that there is no weakening of the animal by its use, such as is experienced with eserine and pilocarpine, and you do not have to witness the distressing symptoms of the severe straining and salivation caused by the use of those drugs.

Then, too, the action of barium chloride is more prompt. With eserine and pilocarpine as it is generally used, hypodermically, you wait forty to fifty minutes and sometimes longer; with barium chloride you are gratified by witnessing a movement in from two to seven minutes, according to the severity of the case. It is easily prepared, so as to have it always ready for use, its cost is nominal, and from every standpoint it recommends itself to me as a remedial agent, not for scientific articles alone, but for everyday use in practice, with no drawbacks (compared with its many advantages) in the hands of veterinarians exercising ordinary antiseptic precautions. I do not mean to convey that in my mind this compound takes the place of all other drugs in the treatment of flatulent colic, but that it is a wonderful addition to our present methods of combatting this class of cases; and often saves us the use of the trocar and lessens to a great extent the number of deaths by flatulent colic prior to its use.

In the treatment of the cases spoken of and of the large draft horses, my first procedure has been to inject the barium chloride, then immediately give two ounces of chloral hydrate (dry) in gelatine capsules, then deciding whether the condition of the animal warranted my waiting for the action of the medicine administered (and in the majority of cases I was able to wait long enough for the barium chloride). If, however, I decided there was not time to wait, I punctured and got

the immediate relief therefrom, the barium chloride following up with its action a few minutes later, and rest and sleep soon resulting from the chloral hydrate, the cases terminated favorably.

TWO RARE CASES OF ASCITES.

By CHAS. W. HEITZMAN, M.D.C., New Orleans, La.

The first occurred in a male cat, the accompanying photo giving a definite idea as to his appearance. Paracentesis abdominis was performed, and about one quart of clear amber-colored fluid removed. "Arsenamo" was exhibited in five (5) drop doses four times daily with decided beneficial results, the cat re-

gaining its appetite and spirits. However, at the end of three weeks the abdomen began to enlarge, and the patient was destroyed. Post-mortem revealed hypertrophic scirrhosis of the liver, and the calibre of the entire intestinal tract considerably diminished. The coats of the intestines were very considerably thickened and indurated.

The second was a thirteen-year-old mare, which was thought to be suffering with flatulent colic. Upon examination I diag-

nosed it as as a case of ascites, with an unfavorable prognosis. Questioning the owner, I ascertained that the animal had a large abdomen when he bought her, some eight or ten years previous, but did not notice it increase to any marked degree until quite recently. He thought she had colic. The animal was down, apparently unable to arise. After administering several doses of stimulants, I succeeded in getting her on her feet. Tried to persuade the owner to have her destroyed, so I could hold a post-mortem. He demurred, so I prescribed a tonic treatment. Appetite voracious, secretions seemingly normal. Three days later was again called, and found the mare down, unable to arise, and all efforts to get her up proved futile. In addition to the abdominal enlargement the hind limbs were swollen, also mammary glands pitting under pressure; appetite, etc., still good. Again advised destruction. Owner wished to know if water could not be removed; was answered in the affirmative, but as I could not see any possible benefit to be derived from it, declined to operate. Left her, with the understanding that should she die I would be notified. An hour later another veterinarian was called, who tapped her. Next morning I held a post-mortem. Found a chronic thickening of the peritoneum, with numerous excrescences of various sizes on the surface. Abdominal cavity full of serum, in which floated any amount of broken-down tissue. The other organs, heart, liver, kidneys, etc., so far as I was able to determine, betrayed no indications of disease.

PROLAPSUS ANI ET RECTI.

By W. L. WEST, V.S., Ellsworth, Me.

June 22, I was called to see a four-year-old, which had been turned out to pasture.

Subject and History.—Brown gelding, 15 hands high, weighing about nine hundred pounds, four years old, and had been in pasture three weeks and seemed all right until the day before I was called, when the attendant noticed the rectum protruding, and next day notified me, and I found the rectum and anus prolapsed. Upon the rectum (the mucous membrane) were ovoid enlargements resembling hæmorrhoids of purple and congested appearance, and around and between these were minute ulcerated spots. Otherwise the colt appeared nearly normal, with the exception of many blotches upon the sides and abdomen.

Treatment.—Bathed the parts thoroughly with a 1-to-30 solution of creolin, to which was added one ounce to the quart, of

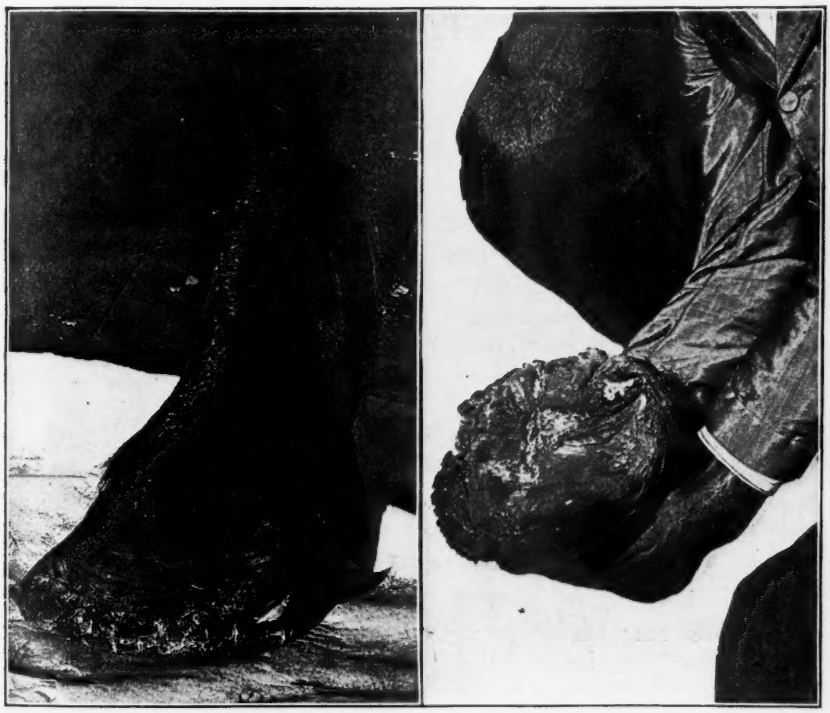
laudanum. Reduced the prolapse and ordered patient to be kept in a narrow stall, with posterior parts higher, and fed on sloppy food, with injections of half a pint of foregoing solution twice daily per anus.

The case made a good and uneventful recovery, but I am still undecided as to the cause. I attributed it to stings from bees or other insects.

EXTENSIVE DISEASE OF THE FOOT.

By GEORGE A. CLARK, M.D.C., Stoughton, Mass.

The history of this case is as follows: The animal was purchased at a sale stable, and was sold with the understanding that he could not travel on pavement, as he had a flat foot, but



might go in the country. His present owner bought him to run on an ice wagon in the country. About two weeks after purchase he came to me and said the horse flinched and kept pointing. I looked at the foot and ordered the shoe off, thinking I might get at the cause of the crack shown in the accompanying photo. The crack began practically at the quarter and ran as

indicated in the photograph. You can imagine my surprise upon removal of the shoe and leather to find the large cavity in the foot indicated by the dark spot which I have lined out. It reached from the toe almost to the quarters, and ran up between the sole and the shell three and a quarter inches by measurement. What surprised me most was why the horse did not travel dead lame. I put a clamp on the hoof to keep the horn from cracking more, and on the foot I put a bar shoe, with a broad piece running from the toe almost to the bars, just enough to support the sole, which was badly dropped and almost worn through. He went, so the owner informs me, all right for two days, then began again to flinch, only not so much as formerly.

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

TUBERCULOSIS OF THE HORSE [*By A. Cartwright, Esq.*].—This is the case of a six-year-old pony, which showed all the familiar symptoms of a severe attack of strangles, accompanied towards the end by colicky pains, suggesting the probability of some abdominal complications. After six months of observation and treatment, the animal was destroyed, and at the post-mortem the liver and spleen were found to be the seat of numerous hard, whitish, dry deposits of tubercular nature. All the other organs were healthy.—(*Vet. Journ.*)

DIPHTHERITIC CONDITION OF THE URINARY BLADDER [*By Mr. H. Sisarry*].—At the post-mortem of a cow that died from complications following parturition, all the organs were found healthy with the exception of the bladder, which presented a very peculiar appearance. It contained about a quart of black fluid, its walls were greatly thickened and were covered by nodular masses; on scraping these a blood-stained membrane was detached, showing ragged-looking ulcerous patches below. —(*Ibid.*)

FRACTURE OF THE PREMAXILLARY [*By Mr. J. M. Stewart*].—This was an interesting case, on account of the manner in which the accident occurred and with the rapidity recovery took place. The subject was a carriage horse, had injured his mouth with the rack chain with which he had been playing, and while having the chain in his mouth one of his teeth got fast in a link and he only got it free after much struggling.

The result was a fracture of the left half of the body of the premaxillary, carrying with it three incisor teeth. After a good deal of manipulation, the bone was pushed back into position, and all the incisors held in place by stout copper wire, twisted firmly with a pair of pliers, the ends being further twisted around the left tusk; the animal was kept on soft diet only for a week. After that hay was allowed and in four or five weeks recovery was complete.—(*Ibid.*)

BARIUM CHLORIDE [*By Mr. J. J. McCarry*].—These are the results obtained by the use of barium chloride in experiments established to test the value of Dieckerhoff's discovery. In all the observations gathered of the intravenous injection of a solution of the chloride, it appears that its actions upon the bowels were followed with the same results, viz., evacuation from the bowels of more or less fæcal masses, with colicky manifestations. The last case is one of a mare which was suffering with colic, and to which, on account of her being pregnant, had only received the ordinary form of treatment of colic. Failing to relieve her with them, the author gave her at last an injection of 15 grains of chloride in 5 c.c. of water, into the jugular, and obtained relief in less than an hour.—(*Ibid.*)

HYPERTROPHY OF THE PROSTATE GLAND [*By Mr. J. A. Nunn*].—Though this affection has been observed frequently in dogs, it has not been in horses. The author has, however, reported one case already in an aged gelding. This time, his second case, though lost sight of, is interesting. There was no previous history to be obtained, but the present owner said he was suffering with difficulty in urinating, which was kept dribbling away from him for a considerable period, alternating with a regular gush of fluid. A calculus was suspected, but on attempting catheterization, the instrument was stopped in the prostatic urethra, and no reasonable amount of force could get it further. Rectal examination showed hypertrophy of the middle lobe of the gland, which was greatly enlarged. Although carefully searched for, no trace of a calculus could be discovered in the bladder, which was empty.—(*Ibid.*)

A WANDERING TOOTH [*By J. Paton and J. Dunlop*].—In the *Veterinary Record*, the authors report another instance of the possible growth of a tooth outside of the walls of the buccal cavity, outside of the maxillary bones. This case was in a yearling which presented a large abscess in the temporal region in front of the left ear close to the scutiform cartilage. The abscess

was opened and the tooth extracted. It was the ordinary size of a temporary molar. From the fangs to the highest part of the cutting surface measured one inch. The fangs, three in number, seemed half absorbed, having a rounded, smooth appearance. The cutting surface was very irregular, much higher on one side than the other, the lower part being made up of small protuberances covered with enamel.

A PECULIAR PHARYNGEAL CASE.—Under this heading, Prof. J. McI. McCall relates a very peculiar case of laryngo-pharyngeal difficulty, accompanied with symptoms of purpura, for which tracheotomy had been performed and presented the singular symptoms of being unable to swallow liquid or solid; whenever he took drink there was a steady stream of water or thin gruel flowing from the tube, and yet the horse would never cough during the process, and only occasionally coughed after the stream had ceased to flow. The case terminated, however, satisfactorily, as the animal was kept up by nutrient enemata per rectum, of beef, of milk and eggs, administered every two hours, with local applications of medicated poultices to the throat. A week of treatment brought him to a state of convalescence.—(*Ibid.*)

GERMAN REVIEW.

By W. V. BIESER, D.V.S., New York.

A CONTRIBUTION TO THE DIAGNOSIS OF TUBERCULOSIS [*Abeau*].—By the bacteriological examination of the blood and various organic fluids, especially the seminal fluid, the author has succeeded in diagnosticating diseases, bacterial in origin, especially tuberculosis. Koch and his pupils assert that his (Koch's) *bacillus* is the exclusive characteristic of and the cause of tubercular lesions. Cornil and Babés deny this for the following reasons:

(*a*) Spina recognized a great variety of forms of bacteria in tubercular lesions.

(*b*) Toussaint found immobile *micrococci* in the tubercular lesions.

(*c*) Cornil and Babés have in their investigations found both in the secretions and upon section, minute *nodules* which stain similarly to Koch's bacilli.

(*d*) Klebs doubts whether Koch's bacilli are the sole cause of tuberculosis and believes that certain *granulations* similar to

those found in recent miliary tubercles, likewise cause tuberculosis ; both cause tuberculosis, according to Klebs.

(*e*) Molassez and Vignal have, while investigating certain pathological changes caused by tuberculosis, found no bacilli in the pathological areas, but on the contrary, " zooglöe of micrococci " difficult to stain, which inoculated in guinea pigs caused general tuberculosis.

(*f*) New cases of tuberculosis induced by inoculation with " zooglöe of micrococci " have been published by Chantemesse, Grancher, and Ledroux have likewise discovered in lesions containing " zooglöe " ovoid " cocci " and short rods.

Cornil and Babes say, if the tubercle bacilli of Koch are invariably present in tuberculosis of the lungs, in most cases of tuberculosis of the liver, spleen, kidneys, etc., ought they not, if they are the cause of tubercular lesions in general, also present in localized tuberculosis, viz., white swelling of joints, caries of bone, cold abscesses, strumous glands, and lupus. C. and B. have only once, in many sections made from specimens of twelve different cases of lupus, found Koch's bacillus ; not being satisfied with this demonstration they have made a series of inoculations with lupus specimens, and were unable to find any bacilli in their inoculation cultures. Furthermore, say C. and B., in chronic or fibroid phthisis of very slow progress, Koch's bacilli may not be demonstrable in the diseased areas ; but the failure to find them with the microscope may give way to success as a result of a series of inoculations of culture mediums, in which they may finally show themselves. In this case we must conclude that the bacilli must have been present even though microscopically invisible, or else that they were present in the form of spores in the affected areas, which spores changed their character and became bacilli only after a series of inoculations of culture mediums.

Nocard and Roux found bacilli in the sputa shorter than Koch's, often accompanied by ovoid swellings called spores by Koch.

One is therefore compelled to admit that other micro-organisms than Koch's bacilli can cause tubercular lesions, and that a variety of lesions may be present in tuberculosis which contain few or no bacilli at all ; all of which facts make us doubt the entity of the morphological character of the micro-organism of tuberculosis inasmuch as the organism has been found by C. and B. ; (1) in the state of " zooglöe " ; (2) in the state of " coccobacteria " ; (3) in the state of " coccotrix " (granular rods) ; (4)

in the state of "bacilli"; (5) in the state of "filaments," viz., in five chief forms or states.

Lately the author has inoculated guinea pigs with 6-10 drops of blood, containing micrococci, cocco-bacteria or zooglöe containing not the slightest trace of bacilli, and has always caused general tuberculosis as a result of the inoculations; furthermore, the author has diagnosticated tuberculosis from the mere fact of the presence in the blood and spermatic fluid of micrococci or zooglöe, which diagnosis has later been confirmed clinically.

Hence the author asserts the polymorphological character of the micro-organism of tuberculosis.

The varieties of bacteria above-mentioned may occur singly or aggregated together. The form of micro-organism seemed to the author to depend upon the medium and upon the question of the absence or presence of air; for example, cold abscesses removed from the air, showed pure or almost pure zooglöe, whereas the sputa always showed pure or almost pure bacilli. Author says almost pure bacilli, because the author, like others examining many specimens of sputa, found filaments also in sputa, ten times as long as bacilli but with the same staining qualities. In intestinal tuberculosis the author found the bacilliary form. One may say that bacilli are present here because secretions containing bacilli get there by being swallowed; but sections of gut lesions below the surface also contain bacilli. In cutaneous or subcutaneous tubercular abscesses, glandular swellings, the author found chiefly zooglöe of micrococci, rarely bacilli or filaments.

Staining the Bacteria.—We stain our specimens blood or seminal fluid with carbolated fuchsin of Ziehl, keeping them at a temperature of 60° for 2 hours, wash them for a few seconds with alcohol, then in water to remove the last trace of alcohol, and allow the penetration of 30:100 (preferable to 10:100) nitric acid solution, preparations are again washed in distilled water and repeat the former until the specimen shows a hardly visible light-red color. Then we bathe the specimen in a weak solution of methyl blue. By avoiding mixture of the alcohol with the acid and by the use of the stronger acid solution the micrococci and zooglöe retain their color; these show in brick-red colors, whereas bacilli show dark-red. If staphylococci are present they show blue-colored. It is impossible to mistake the coccotrix (or granular rod) of tuberculosis for a chain of streptococci. By this method we have easily found micro-organisms in the blood as soon as tubercular disease manifested itself in the testes, in-

testine, spine, etc., we found zooglöe of micrococci, coccobacteria, never filaments; definite colored or living bacteria very seldom. From this standpoint, the blood specimens which we have examined have an extraordinary interest, inasmuch as we have found microbes (1) in cases of clinically substantiated cases of tuberculosis, (2) in cases of clinically healed tuberculosis, (3) in cases of latent tuberculosis, *i. e.*, in patients who having the tubercular diathesis give no clinical evidences of tuberculosis. In the spermatic fluid we have found zooglöe, coccobacteria, and bacilli. The bacteriological examination of the sperma is easier than that of the blood and often of greater importance; for we have found micro-organisms (zooglöe, cocci, and bacilli) in the sperma of patients, whose blood frequently examined showed no microbic elements; we are speaking of course of patients showing no evidences of inherited tuberculosis.

The importance of differentiating between the finding of organisms in blood on one hand and spermatic fluid on the other must not be forgotten. The blood is not culture medium, merely carrying micro-organisms with it which it meets in its circulation. The spermatic fluid, on the contrary, is an ideal and favorite habitat for micro-organisms of other chronic diseases besides tuberculosis.

The microbes circulate merely in the blood but live in spermatic fluid. The presence of microbes in the blood means that somewhere in the body a focus of infection exists which sends microbes into the blood. The presence of microbes in the blood may, however, suffice to furnish an early diagnosis of tuberculosis before any noticeable clinical manifestations ensue. We can point out many cases diagnosticated early as tuberculosis through blood examination whose only symptoms were anæmia or disturbances of digestion, that proved to be tubercular afterward. The presence of microbes furthermore in the blood may help in the diagnosis of doubtful cases. The presence of microbes in the spermatic fluid, however, is of far greater importance, as it throws a new light upon the transfer of the microbe from father to child, not only in tuberculosis, but in syphilis, etc. Therefore to the author there is no doubt on this point, that an infected parent can inoculate the ovum at the time of fecundation.—(*Oest. Monatschrift f. Thierhlk. und Revue.*)

EQUINE VOMITING [*Martin*].— Equine vomiting as well as its connection with abdominal lesions has always been an in-

teresting topic. The queries: Why does not the horse ordinarily vomit? Can the horse vomit irrespective of abdominal lesions? What lesions especially conduce thereto and wherefore?—are all disputed points whose solution may be arrived at clinically rather than through any other ways. A 23-year-old mare—previous health good—fed chiefly upon grass and soft boiled potatoes, pulled a loaded wagon to market eleven miles away, was then stalled for five hours, during which times she was copiously supplied with oats. Upon the return of the journey, greenish matter discharged itself—using the owner's words—every five minutes from each nostril. Upon her reaching her stable, the author was sent for, who found the mare with legs outstretched, anxious facial expression, but with no evidence of marked pain anywhere; after 3 or 4 minutes a wineglassful of strongly smelling greenish fluid poured out of each nostril, doing so without any apparent effort at retching or straining on the part of the mare. The pulse was very rapid and weak, 65, the membranes injected. The author diagnosticated vomiting as a result of rupture of the stomach. The locality being remote, the author had to content himself with the remedies at hand; he therefore ordered a mustard plaster to the abdomen and ℥ss brandy in ℥i water, which remedies to his surprise seemed to stop the vomiting for 6 hours, at the end of which period the vomiting recurred but less frequently and in smaller quantities; slight tremors then seized the animal, the other symptoms grew worse, viz.: face became more and more pinched and anxious, pulse weaker and weaker, and death ensued quietly about 24 hours after the first visit. The autopsy showed extensive tears in various directions in the wall of the stomach; the wall of the stomach was very thin; food was scattered all over the abdominal cavity; evidences of acute peritonitis were present; judging by the stage attained by the inflammatory process the rent must have been a recent one, say of 24 hours duration at least. The interesting points of the case were: 1st, the early onset of the vomiting, it having made the farmer first aware that something was amiss; 2d, the ease with which the vomiting occurred, it seeming to be as easy as ordinary swallowing.

The lesion was such as was to be expected from the nature of the case. A very old mare, in whom the walls of the stomach had thinned out both as the result of old age and the nature of the food, was suddenly made to perform extraordinarily hard work, was then fed copiously with oats, then made to jour-

ney homeward over a distance of eleven miles. The stomach failing to digest the oats, fermentation with dilatation of the stomach ensued, which dilated stomach being squeezed between the diaphragm and the vigorously worked abdominal muscles, ruptured from inability to stand the pressure.—(*Oest. Monatschrift. f. Thierhlk. und Revue.*)

FRENCH REVIEW.

UMBILICAL HERNIAS—TETANUS AND ANTITETANIC SERUM.—For a number of years, the author, Mr. P. Dieudonné, has lost a number of cases (generally three out of ten) on colts that he operated for umbilical hernia, no matter what method he employed; of late he has had recourse to the injection of antitetanic serum and obtained results which confirm the value of this vaccination as a prophylactic measure. He relates an instance when having operated with success on one animal, he lost a second where he had no serum to inject, while a third colt, also inoculated, escaped the fatal sequela.—(*Rec. de Med. Vet.*)

ABSCESS OF THE INTRA-VENTRICULAR SEPTUM IN A COW [*By A. Quentin de Serrancourt*].—This is the case of a Flemish cow, which after recovery from a large abscess on the left side of the thoracic cavity, died comparatively suddenly, and at the post-mortem revealed a purulent collection of the size of a small egg in the muscular mass of the coxo-femoral joint, and exposed by chance another larger one in the thickness of the intra-ventricular septum.—(*Ibid.*)

CERVICAL ŒSOPHAGEAL JABOT—RECOVERY.—A rather unusual case, recorded by Mr. Roy, which occurred in an eight-year-old horse, and which was attributed to its gluttonous appetite, bolting his food at each meal without mastication. Comparatively of recent date, and located in the lower third of the neck, where local pressure could be applied, the author made a kind of truss which was adapted to the region and held in place by straps secured to the surcingle. To this local treatment a special régime was directed, consisting of food divided or crushed. Local astringent applications were also applied. Removing the apparatus after eight days, at first it seemed as if the enlarged œsophagus had returned to its normal proportion. This was, however, an error, as after the first ordinary meal the jabot returned with all its primitive aspects. The apparatus reapplied and left on for two weeks longer was followed by a com-

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plete recovery, with a little cicatricial band, easily perceptible, alongside the tract of the œsophagus.—(*Ibid.*)

A CASE OF CARIES OF THE INCISORS IN A HORSE [*By H. Cornevin and Lesbre*].—This common disease of the molars seems to be very rare in incisors, and the literature on the subject is exempt from mentioning it. This case was sent to the authors from Chili, and was well characterized. Starting at the neck of the teeth, it extended deep on the labial faces, and was more marked on the central than the lateral teeth. The caries spread up to the table but this remained unharmed. On the buccal surface the diseased process was still limited. The roots remained healthy.—(*Journ. of Zoötech.*)

RUPTURE OF THE RECTUM IN A HORSE WHILE CAST [*By M. Porchevel*].—Among the accidents met in casting, rupture of the rectum is not very common. In this case the animal, thrown to be fired for a spavin, was cast according to the classical rules, and with the best of care. During the operation he struggled two or three times. Towards its end, after a violent contraction, a red cylindrical mass protruded through the anus: it was the inverted rectal mucous membrane. The animal was made to rise and the hernia reduced, but another effort of the animal pushed it out again, it tore and allowed the floating colon to pass through the laceration. The animal was ultimately destroyed. At the post-mortem it was found that the laceration of the entire thickness of the rectum existed about 15 inches from the borders of the anus, on the inferior wall of the rectum, and measured about ten inches in length.—(*Ibid.*)

TUBERCULOSIS OF THE RACHIDIAN CANAL IN A COW [*By M. Morot*].—This is the relation of a post-mortem made on an animal affected with generalized tuberculosis, in which the lungs, the bronichal and mediastinal glands, the liver and the spleen were found to contain numerous tuberculous deposits. When the carcass was dressed and cut in its entire length, an extensive tuberculization of the second dorsal vertebra was exposed, spreading more on the right than on the left. The spongy part of the body, of the annular part and of the spinous process was extensively infiltrated with tuberculous substance; it is a greyish substance, more commonly yellowish, constituted by tuberculous granulations. The calibre of the rachidian canal is somewhat modified. There were no other lesions in the bony system. During life it had been observed that the animal was difficult to fatten, ate well, had difficulty in getting up, and it was only with great efforts that she was able to stand. Very

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often she carried her neck on the side. It is the second case the author has met in his practice.—(*Rev. Veter.*)

A CASE OF VOMITING IN THE HORSE.—M. G. Viand records in the *Revue Veterinaire* this case of a filly which during a severe attack of violent colic, gastric indigestion, vomited at three or four different times a mixture of partly crushed oats and glairy mucous. These expulsions took place both from the mouth and through the nose *almost without contraction.* At the end the animal coughed a few times, as if to clear her windpipe, and was entirely relieved. The case shows once more that vomiting can take place in the horse without rupture of the stomach.

MULTIPLE SYNOVITIS OF THE ANTERIOR BIPED OF A HORSE [*By Mr. Sicard*].—Under this heading the author reports a case, evidently of rheumatoid nature, of a young horse which, first affected with lameness of the right shoulder, was some months later taken on both fore feet with symptoms characteristic of rheumatism, all the articulations and synovial structures being more or less affected. The animal was submitted at first to mild treatment of local sedative applications, of setons in the shoulder, and the administration of diuretics, but did not show any improvement until the entire lower part of the extremities were fired. Some 400 points of firing were applied from the knee down to the coronet, and the first effects of the operation having subsided, the lameness disappeared in two weeks, and the animal resumed his work.—(*Rev. Vet.*)

PHARYNGO-LARYNGEAL ANGINA.—In the June number of the *Revue Veterinaire*, Mr. G. Viand records the case of an animal affected with distemper, which showed the symptoms of pharyngo-laryngeal angina with such severity that tracheotomy had to be performed at once. This was followed by the administration of gargles, made of water and alcoholate of iodine. Two of these were sufficient to bring on a well-marked improvement. Nasal douches of cresyled water were administered in connection with the gargles.

TEARING OF THE EXTERNAL PROJECTION OF THE FEMORAL CONDYLE—CONSECUTIVE ARTHRITIS.—A Norman horse when lying down is suddenly whipped by a driver and by violent effort attempts to jump, misses his footing, falls on the right side, but at last succeeds in standing. He is lame for a few days and then his walk is normal. Two or three months later, the attention of Mr. Dupont is called to him, who finds that the horse is very lame with an acute arthritis of the right femoral

tibial joint. Notwithstanding the repeated applications of blistering mixtures, the case rapidly grew worse, constitutional disturbances manifested themselves, and he died in a state of marasm. At the post-mortem two bony pieces of the size of small chestnuts, fragments of the external projection of the right condyle of the femur, were found on the upper part of the patella and by their presence had given rise to the development of the acute-arthritis whose lesions were well marked.—(*Ibid.*)

ITALIAN REVIEW.

TREATMENT OF QUARTER-CRACKS BY FIRING [*By M. A. Girotti*].—This process consists in making transversal lines on the hoof, as already recommended in France. Employed by the author, he has obtained the best results, which permitted him to work after a few days a donkey which had a complete quarter-crack on the left fore foot, from the edges of which oozed blood and pus.—(*Moderno Zooiatro.*)

AMPUTATION OF THE UTERUS IN A COW [*By M. Manfredi*].—Though this operation is seldom successful, the author reports a case where the cow recovered entirely without even showing any pain during the operation. Before the amputation proper, two ligatures, embracing each half of the peduncle of the uterine mass, had been applied at four centimetres of the vulva, and had been completed by a ligature of the whole mass. The treatment was completed by injections of creoline at 3.7, and the recovery obtained after a few days.—(*Ibid.*)

CONTRIBUTION TO THE STUDY OF CANINE TUBERCULOSIS [*By M. Galli-Vaterio*].—Conclusions of a long work on the subject: The bacilli of Koch, in dogs, have a tendency to assume a granular aspect. In some cases, it is impossible to put them in evidence, as they are reduced to the state of simple granules. In these same cases, the tubercles inoculated to guinea-pigs may remain without effect or give rise to a very limited tuberculosis with slow development. In others, as observed by Cadial, fibrous tubercles can be found, indication of spontaneous recovery. The presence of some parasites may promote the development of tuberculosis in some parts of the body, by preparing, through their lesions, a favorable ground for the evolution of the bacilli of Koch, or by carrying the specific bacilli in their migrations, as observed by Piana for the pisiform cysticercus of rabbit. The tuberculous bacillus, after

passing in the dog, can be injected in large quantity in the peritoneum of another dog, without he contracting the disease, a proof of its resistance towards tuberculosis.—(*Ibid.*)

THE MICRO-ORGANISM OF DOG DISTEMPER [*By M. G. Lisi*].—The author has searched in the spinal cord of a dog affected with paraplegia, the pathogeneous element described by Galli-Vaterio. By cultures and inoculations he has found a micro-organism which did not have all the specific characters of that of G. Vaterio, and he believes that this micro-organism of dog distemper has no constant biological characters.—(*Ibid.*)

RESEARCHES UPON THE MOST COMMON CAUSES OF STERILITY IN COWS [*By Mr. A. Fiorentini*].—These were made upon 50 uteri of cows, sold on account of sterility. In a third of those, the author found catarrhal endometritis with degeneration of the epithelium and proliferation of some points of the mucous, which had a warty appearance. The fluid contained in the uterine cavity contained a micro-organism, oval in form, presenting some analogy with the *B. coli.* It differs from it by giving yellow colonies, by liquefying gelatine and not being pathogenous to the guinea pig nor the rabbit. In the other organs, there were interstitial granular, septic, tuberculous metritis and cysts of the ovaries, of the uterus or of its neck. From these observations, the author believes that these various affections of the uterus can be avoided by repeated antiseptic washings of this cavity, during the days following parturition. In cows already diseased, which most all become nymphomaniacs, there would be advantage to perform castration, which would promote fattening and permit of sending them to the butcher in remunerative conditions.—(*Giorn. Dello R. S. and Acad. Vet. Ital.*)

FEEDING ANIMALS WITH FLOUR OF COCOA.—The flour is made of dried cocoa-nuts. It is given in five times its weight of water, after soaking twelve hours. Dry flour cannot be digested. Administered wet, it is most economical and nutritive food, its nutritive power being beyond that of others, as demonstrated by the experiments of Prof. Zuchiné. In horses cocoa-flour gives extraordinary results and can take the place of oats to some extent. It ought to be given to horses in the evening—in colts, it promotes the development of muscles—in milk cows it increases the quantity of milk and of cream.—(*Ibid.*)

UPON THE EXISTING POWER OF SPORES OF ANTHRAX.—In the laboratory of Prof. Perroncito, with dried culture prepared in 1880, inoculations were made on guinea pigs, which

died fifty-four hours after with anthrax. This fact shows the resisting power possessed by spores of anthrax virus and also the necessity of the anti-carbuncular vaccination upon all animals living on places where the disease may have ceased to appear for several years.—(*Ibid.*)

SOCIETY MEETINGS.

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The second quarterly meeting of this association, was held in the lecture-room of the California Veterinary College on June 10, 1896.

The meeting was called to order by the Secretary, who stated that on account of sickness of the President, Dr. F. W. Skaife, would not be present, and it would be in order to elect a President *pro tem.*, whereupon Dr. W. F. Egan, of San Francisco, was unanimously elected.

The Secretary called the roll, and the following named gentlemen answered to their names: Drs. Egan, Steers, McGowan, O'Rouke, Fabbi, Hogarty, Jackson and Fox. Visitors: Dr. Archibald, of San Francisco, Dr. Scott, of Montreal, and the students of the California Veterinary College.

The minutes of the previous meeting were read and approved. Communications of regret were read from Drs. H. A. and H. F. Spencer, also from Dr. F. W. Skaife. A communication was read from Dr. P. P. Parent in regard to doing a traveling business. The communication was laid on the table indefinitely.

Dr. J. W. O'Rouke, of San Francisco, came forward with a most excellent paper on the subject matter of "Meat Inspection." The Doctor demonstrated clearly to the members present that he had given the subject a great deal of thought, and had spent considerable time in preparing the paper. The members showed their due appreciation by entering into a most lively and interesting discussion, in which nearly all the members present took an active part. The discussion closed by a few well chosen remarks from the chair.

Dr. Steers now read a communication which he had received from the Palo Alto Breeding Farms in regard to mares aborting their foals. Several suggestions were offered as to the possible cause, but no definite conclusion was arrived at, the data being very limited.

This closed the reading of papers and discussions. After a

vote of thanks had been tendered Drs. O'Rouke and Steers, the meeting was opened under the head of new business.

Motion by Dr. Fox, seconded by Dr. Steers:

"I move that the action taken by this association on March 11th in the matter of accepting the resignation of Dr. R. A. Archibald be rescinded, and the Doctor be given an opportunity to withdraw his resignation." Carried unanimously, and so ordered.

Dr. Archibald came forward with a most excellent speech on the subject of interest of the profession as shown by the members of the association. He showed very plainly that there had been a lack of interest taken in the welfare of the association and the profession in general. He also stated that unless there was more interest taken he did not care to belong to such an association. At this juncture every member present avowed that he was ready and willing to do anything in his power to advance the standing of the profession in the State.

Dr. Archibald now withdrew his resignation, and was declared a member in good standing.

Whereupon, the following resolutions were introduced by Dr. R. A. Archibald:

WHEREAS, It has pleased the Divine Architect of the Universe, in His wise dispensation, to remove from among us our late member, Dr. H. Lemke, be it

Resolved, That while we bow humbly to His will, we, nevertheless, feel keenly the loss we are called upon to sustain; for in our late member we had one who was devoted to his profession, an earnest and active member of this organization, and a man who was honored and respected by the entire community in which he lived; and be it further

Resolved, That a copy of these resolutions be spread upon the minutes of our association, and the Secretary be instructed to forward a copy to the wife of the deceased.

So ordered. Dr. Archibald introduced the following:

WHEREAS. It has become necessary for the Governor of this State to investigate to what extent Texas, splenic or splenetic fever exists in California, and

WHEREAS, This action of the Governor is due to the fact that the Federal laws quarantining the entire State during the "fever season," when the disease is only confined to certain parts of the State, and

WHEREAS, We, the members of the California State Veterinary Medical Association, realize that this action on the part of the Federal authorities is jeopardizing the live stock interests of that portion of the State in which the disease does not exist, therefore be it

Resolved, That a committee of three members of this organization, to be elected by ballot, be authorized by this association to represent it in this matter, and, be it further

Resolved, That this committee be instructed to coöperate with and assist the Governor by every means in their power to control this disease without unnecessarily interfering with the prosperity of the State.

The resolution was adopted, and Drs. Archibald, Skaife and Fox elected to serve on the committee as provided for in the resolutions.

The following was also introduced by Dr. R. A. Archibald:

WHEREAS, It is a notorious fact that the present system of meat and milk inspection in this city (San Francisco) is a farce, and not only a farce, but an imposition upon the people, and

WHEREAS, We, the members of the California State Veterinary Medical Association, realize the necessity of more intelligent and more scientific inspection, therefore, be it

Resolved, That the President of this organization be authorized and he is hereby requested to appoint a committee of five to investigate this matter and to take steps to formulate plans whereby a more scientific and systematic inspection may be brought about.

The resolution was adopted, and Drs. Archibald, O'Rouke, Skaife, Steers, and Egan were appointed to act on the committee as provided for in the resolution.

Owing to the fact that the late Dr. Lemke was vice-president of the association at the time of his death, the office was declared vacant, and nominations for vice-president were in order.

Dr. J. Graham, of Fresno, was nominated and unanimously elected to fill the unexpired term.

The Secretary was asked to secure essayists for the next meeting, which he consented to do.

There being no further business before the house, the meeting adjourned to meet in Sacramento on the 9th of September, 1896. D. F. FOX, *Secretary.*

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting of this association was held at the Union Hotel, Galesburg, Ill., May 19, 1896. In the absence of both the President and Vice-President (Dr. M. R. Trumbower, President, and Dr. J. L. Tyler, Vice-President) Prof. A. H. Baker, of Chicago, was elected President *pro tem.* and responded by an appropriate address.

The following members responded to roll-call: Drs. Albert Babb, A. H. Baker, F. L. Brown, E. S. Fry, T. J. Gunning, W. C. Hannawalt, J. McClintock, W. G. Neilson, R. P. Steddom, and John Scott.

After the Secretary made his report, Prof. A. H. Baker read his production, "Puncturing for Gastric Flatulence." The discussion of this valuable paper was considerable and earnest. The article of Dr. T. B. Newby, of Pana, entitled "An Anomalous Disease of the Horse," was read by the Secretary, the writer being absent. After the discussion of this paper, the association adjourned for dinner.

The Society reconvened at 2 P. M., and listened to the essay of Dr. John Scott, "Diseases and Injuries of the Foot."* A lengthy discussion of this wide subject was finally closed on motion.

* Published elsewhere in this number.

A general and very interesting discussion then took place of "Barium Chloride as a Therapeutic Agent," of "Tuberculosis," "Parturient Apoplexy," of "Heat Exhaustion and Sunstroke in Horses," "How to Fire for the Cure of Spavin," and other meritorious topics.

On motion of Dr. Steddom, which was seconded by Dr. Gunning, Chas. H. Merrick and Robert Gysel, both of Chicago Veterinary College, class of '93, and R. E. Mylne, of Montreal Veterinary College, class of '89, were elected to membership by acclamation.

The subject of State legislation was next taken up, and it was unanimously decided that the matter should be pushed to the front during the session of the coming legislature.

Adjourned to meet in Chicago in November.

ALBERT BABB, A. B., M. D. C., *Sec'y.*

VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION.

The third annual meeting of this association was held at Norfolk, Va., June 24, 1896, President Dr. W. H. Harbaugh in the chair, and Secretary Dr. Geo. C. Faville at his post.

The following members were present: Drs. Harbaugh, Faville, Gilchrist, Niles, Drake, Dixon, McCulloch, Bannister, Curtice and Sweeney. Health-officers and laymen of Newport News and of the city were also present.

Drs. F. S. Roop, Blacksburg; E. E. Bowen, Lynchburg; John Rome, Colonial Beach, and A. J. Burkholder, Staunton, were elected to membership.

After listening to the retiring president's address, and transacting routine business, the following officers were unanimously elected for the ensuing year: Dr. George C. Faville, Norfolk, President; Dr. W. T. Gilchrist, Norfolk, 1st Vice-President; Dr. Chas. McCulloch, Howardsville, 2d Vice-President; Dr. Thos. M. Sweeny, Richmond, Secretary, and Dr. A. J. Burkholder, Staunton, Treasurer.

The association then took a recess and enjoyed the hospitality of Dr. Geo. C. Faville, at his elegant home at Atlantic City. Later they were driven to the Lambert's Point piers to witness the inspection, tagging, etc., of export cattle, previous to their embarkation for England, after which the members returned to Norfolk.

The association reconvened at 4.45 P. M. During the afternoon session the following papers were read: Dr. H. S. Drake,

"Navicular Disease"; Dr. Cooper Curtice, "Eradication of the Cattle Tick." Dr. W. H. Harbaugh also read an interesting paper, the title of which was "Report of a Subnormal Temp r ature."

All the papers were fully discussed.

The veterinarians of the State are actively engaged in a brisk fight against bovine tuberculosis. The disease was fully discussed, after which the following resolutions were passed:

We, the Virginia State Veterinary Medical Association, fully endorse the work being done in this State in regard to the prevention of products of tuberculous animals being sold as human food, and we desire to inform the public that the tuberculin test is the only reliable means of diagnosing tuberculosis in cattle, and we further assure the public that when tuberculin is properly used it has positively no deleterious effect on healthy cows or their milk.

We further declare that milk or meat from tuberculous animals is impure and unfit for human food, no matter to what extent the animal may be affected.

It is the opinion of this association that the national government should adopt radical methods to exterminate this disease and prevent any more of it being introduced from abroad by the importation of thoroughbred or other stock, and, in the meantime, we strongly urge our State authorities to quarantine against other States and allow no cattle to be shipped into this State for breeding or dairy purposes, unless accompanied by a clean bill of health, based on the tuberculin test, or to have them tested by a veterinarian satisfactory to the Board of Control at point of entry at owner's expense.

Next subject brought before the association was the anti-vivisection bill, which was introduced in the last Congress. After the subject had been fully discussed the following resolutions were adopted:

WHEREAS, There is before the Senate of the United States a bill which would check all vivisection and experiments directed toward the amelioration of disease among the lower animals and man; and,

WHEREAS, Such experiments as are conducted by the Bureau of Animal Industry are of incalculable value to the live-stock industry of the country; and,

WHEREAS, This bill in our opinion is a misdirected philanthropy, which tends to protect the few at the expense of the many, be it

Resolved, That the Virginia State Veterinary Medical Association request the members of the Senate and House of Representatives from this State to oppose to their utmost any measure tending to curtail the usefulness of the Department of Agriculture in the District of Columbia in its investigations of the diseases of live-stock.

The report of the officers showed the association to be in a most flourishing condition, and it now includes in its membership all of the legitimate veterinarians in the State, with the exception of three, and we hope to have them as members at our next meeting.

After adjourning, the association, as a body, visited the fine old Virginia resort, Ocean View, and enjoyed the luxuries thereof.

The association adjourned to meet at Staunton, Va., January 5, 1897, thereby bringing to a close one of the most successful meetings ever held by the association.

THOMAS M. SWEENY, *Secretary.*

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

This association will hold its next meeting at Reading on October 6th, it having been postponed one month. The following papers are promised: Dr. Felton, "Canine Distemper"; Dr. Ross, "Management of Cases of Parturient Apoplexy Homeopathically"; Dr. Hart, "Azoturia;" Dr. Michener, "Parturient Apoplexy"; Dr. Allen, "Acetanilid;" Dr. Conard, "Abortion"; Dr. Helmer, "Homeopathy versus Regular Practice of Veterinary Medicine"; Dr. Hoskins, "Pyoktanin"; Dr. Hart, Committee on Legislation; Dr. Zuill, Committee on Education; Dr. Pearson, Committee on Sanitary Science.

W. H. RIDGE, *Secretary.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting was held at the Hotel Exchange, Lewiston, July 14, 1896, and called to order by President Russell.

On roll-call the following gentlemen answered to their names: Drs. Russell, West, Choate, Huntington, Salley, Freeman, Stevens, Purcell and Cain.

Dr. Purcell reported for the committee appointed to confer with the Maine Cattle Commission in regard to non-graduates testing cattle, that the committee were very courteously received, and the commission agreed not to vouch for any non-graduates in future, and he (Purcell) read a letter from Hon. J. O. Beal, chairman of the commission, to that effect. On motion, it was voted to accept the report.

Voted that the Secretary send a memorial to United States Senators Hale and Frye asking them to use every means in their power to defeat Senate Bill 1552, which seeks to prevent experiments being made upon animals.

Secretary read a letter from Dr. G. H. Bailey tendering his resignation from the association. It was voted unanimously not to accept the resignation.

Voted that this association strongly condemns the act of any member who tries to obtain practice by offering to do it under price.

Voted to reconsider the schedule of prices and amend it so that it shall read "no member shall test cattle for less than one dollar per head."

RESOLVED, That the Maine Veterinary Medical Association respectfully protests that the testing of cattle for export to Massachusetts for furnishing milk for our own citizens is a matter of such importance that it should only be done by competent and well qualified

men, and so far as it is being done by men of no professional training the results are misleading and of no value; and, be it further

RESOLVED, That if this important test cannot be made by professional men, there is no need of its being made, no valid reason exists for entailing unnecessary and unwarranted expense upon the owner or shipper.

Voted that a copy of these resolutions be sent to the Maine and Massachusetts Cattle Commission, President of the Maine Board of Health, and all State newspapers.

Voted to present the same bill to the Legislature that was presented in 1893.

Voted to adjourn to meet at the Bangor House, Bangor, in January, 1897. W. L. WEST, *Secretary.*

NEW HAMPSHIRE VETERINARY MEDICAL ASSOCIATION.

The eleventh meeting of this association was held at Concord, July 14th, 1896, with Dr. Lilico in the chair.

Drs. Tuttle, Wilkinson, Lilico, Abbott, Macguire, Hart, and Pope responded to roll-call.

Dr. Wiggins' application was presented and laid over until next meeting.

Dr. Lilico then addressed the association regarding the subject of veterinary legislation. After a long discussion it was voted that a committee be appointed to draw up a bill and present it at the next meeting, said bill to be similar to those of other States having examining boards.

After a discussion on tuberculosis, the meeting adjourned until September 1st.

L. POPE, JR., M.D.V., *Sec'y.*

NIAGARA AND ORLEANS COUNTIES VETERINARY MEDICAL ASSOCIATION.

A meeting of the veterinarians of Niagara and Orleans counties was called by J. P. Thomson, secretary of Niagara county, for the purpose of considering the organizing of a county Veterinary Medical Society, and also to discuss matters bearing upon the profession in general.

The meeting was called to order at 4 P. M. by J. P. Thomson, secretary. Moved and seconded that Dr. Stocking be appointed chairman. Carried.

On motion, it was decided to proceed to the election of permanent officers from those veterinarians present. Carried.

Ballots cast and Dr. Martin, of Lockport, was elected President; Dr. Stocking, of Medina, Vice-President.

Moved and seconded that the present Secretary, Dr. J. P. Thomson, of Niagara Falls, N. Y., be considered Secretary-treasurer. Carried. That Dr. Kesler, of Holly, Dr. Hunter, of Lewiston, and Dr. Williams, of Middleport, be appointed Censors. Carried.

Topics relating to the uplifting of the profession, the protection of the community against imposition and the animals against cruelty at the hands of illiterate practitioners were discussed.

Reports relating to the use of tuberculin and mallein as diagnostic agents, and tetanus antitoxine as a curative agent were listened to.

The Secretary was instructed to have the report of meeting published in the journals.

A committee was appointed to formulate a constitution and by-laws, to be presented at next meeting, which shall be held at Medina, Aug. 18th, at 2 P. M.

Moved and seconded to adjourn. Carried.

J. P. THOMSON, *Sec'y.*

VETERINARY COLLEGE ANNOUNCEMENTS.

NATIONAL VETERINARY COLLEGE.—Just after the forms were closed for the August REVIEW, we received the welcome news by letter from Professor Salmon, of the above college, that it had merged into the Columbian University, becoming the Veterinary Department of that institution, and inaugurating the three-year course of instruction, by which alone can the modern student become a modern veterinarian, with his many-sided qualifications to meet the more exacting demands of individual and state medicine. By the coalition the National College secures exceptionally fine laboratory facilities, with a distinguished corps of teachers in the collateral branches of veterinary science, while the professors in the veterinary specialty who were connected with the school previous to amalgamation will retain their branches. Upon this point, however, we are not thoroughly informed. The news of the increase in the college course and the increase in the facilities for imparting greater knowledge is enough good news for this issue ; the *personnel* of the faculty will be made public as soon as the arrangements are all completed.

NEW YORK STATE VETERINARY COLLEGE.—We reviewed the announcement of this college in the August REVIEW, making the sole criticism that there were but two veterinarians in the faculty, with a vacancy in the chair of the principles of veterinary surgery, zoötechny, obstetrics, and jurisprudence, expressing the hope that this void might be filled by some member of the profession who would reflect credit upon it. We are pleased to announce that Professor W. L. Williams, of the Agricultural College, Bozeman, Mont., has been secured for this position, and it is difficult to see how a better selection could have been made. He is a practical, hard-working, intelligent, enthusiastic, and distinguished member of the veterinary profession, and will be in a position that will fit him and which he will fit to a nicety. Prof. Law is to be congratulated upon his wisdom and his good fortune in securing the services of so well-adapted a man.

TORONTO VETERINARY COLLEGE.—The session of 1896-97 of this college will begin on October 14th. No changes are noted in the faculty since last session, and it is expected from the number of applications received that the attendance for the next session will be as great as ever. For prospectus and all information, address Prof. Andrew Smith, F. R. C. V. S., Principal, 40 Temperance St., Toronto, Can.

COMMUNICATIONS.

UNIFORM DEGREE AND ONE EXAMINING BOARD FOR VETERINARIANS IN THE UNITED STATES.

WASHINGTON, D. C., August 10, 1896.

Editors American Veterinary Review:

DEAR SIRS:—The veterinary profession in the United States is, so to speak, in its infancy, but though a young child it has exhibited greater strides of progress in some directions than has some of the older professions. Though the years are few of its existence, the degrees by which colleges have placed their seal of qualification are many. I will enumerate a few, which will give an idea of the condition of the present degree designations, to wit: V.S., D.V.S., M.D.C., M.D.V., D.V.M., V.M.D., M.R.C.V.S., F.R.C.V.S., M.U.S.C.V.S., F.U.S.C.V.S., etc.

The apparent lack of uniformity is very striking. The great need of the present is the adoption of a uniform degree by the Association of Faculties of Veterinary Colleges of North

America. Let every college grant the same degree. When we have decided upon the degree, let it mean something, and let the requirements necessary for its possession be the same throughout this great country.

My plan would be to discontinue the State veterinary boards as examining bodies for candidates to practice veterinary surgery, and make them the consulting sanitary board of the State; they meeting at stated periods, at which time measures in preventive medicine, cattle inspection and other subjects of like nature shall be fully discussed and such recommendations as shall be agreed upon placed before the legislative and executive departments of the State government.

Now, as the profession of the veterinary sciences is a great one, and its future is so near when it shall be the peer of others, the standard should be placed high.

If a man is capable of practicing the science and art of veterinary medicine and surgery in the State of Maryland he is most assuredly as fully capable to practice the same science in California. Now, why compel him to undergo re-examination every time he shall change his place of residence. It is a hardship and an injustice.

When a man receives his degree it should mean something, and to this end I would suggest the following plan of granting the degree of V.S. and the registration of candidates to practice in this country.

On the first day of February let the faculties of every veterinary college in this country send two questions taught in each branch of its curriculum to the Association of Faculties of Veterinary Colleges in North America, and from these questions let this body select the questions for the final examination of candidates for the degree of V.S.; and certificate of registration to allow him to practice veterinary surgery in the United States, the successful candidates becoming also members of the United States College of Veterinary Surgeons. Let this examination be held at the different colleges on the same date, say the 1st day of April, and continue one week—or 48 hours' time allowed for the complete examination.

Let the questions decided upon by the Association of Faculties be copied and placed in sealed envelopes for each college.

Have each college exchange one of their faculty to conduct the examination and let each college bear the expense of such examiner.

The sealed questions are then sent to each college and the

delegated examiner shall break the seal in the presence of the faculty and conduct the examination according to form to be adopted by the Association of Faculties.

The papers of all candidates are upon completion of the examination independently sealed, registered and transported to the Association of Faculties and are examined by them. This body shall then notify the several colleges of the successful candidates, and they shall then receive the degree, and immediately thereafter a certificate to practice their profession in the United States.

This method will encourage a close study of the science, promote the selection of faculties of high order and give uniformity to the qualifications and law of practice. It will be much cheaper for the student, as he is not compelled to travel great distances after graduation to be examined by a State board. No partiality can be exhibited, and the student is insured an honest and just examination.

I would beg most earnestly the Association of Faculties of Veterinary Colleges of North America to consider these suggestions.

CHARLES M. EMMONS, M.D., Ph.D.,
Professor of Mental Diseases, Howard University, Medical Department; Professor of Physiology and Histology, United States College Veterinary Surgeons.

MASSACHUSETTS CATTLE COMMISSION.

BOARD OF CATTLE COMMISSIONERS,
52 VILLAGE ST., BOSTON, Aug. 8, 1896.

Editors American Veterinary Review:

DEAR SIRS:—I note in the last REVIEW an editorial on the Massachusetts Cattle Commission. I thought you would be interested to know that the first appropriation was $35,000, 1894; the second, $150,000, 1895; and this year, $300,000, $50,000 more than was asked for in the annual estimates submitted to the auditor.

We have now on file five times as many applications for herd tests as we could attend to with double our funds.

Yours sincerely,
A. J. SHELDON.

IOWA LAWS AGAINST HOG CARCASSES.—Iowa now has a State law which prohibits the buying, selling or giving away, or hauling over any public highway, any diseased swine, or swine that have died or been slaughtered on account of *any* disease. The law provides that such carcasses shall be burned or properly buried.

OBITUARY.

JOHN WESLEY GADSDEN, M.R.C.V.S.—On Wednesday, Aug. 12th, at his home, 2109 Arch Street, Philadelphia, Pa., the well-known veterinarian whose name heads this article, died, at the age of 64. In this simple announcement the veterinary profession has sustained a serious blow, for no man was a more conscientious laborer for the advancement of that science, both by example and by precept, than he who was known to his brethren throughout the length and breadth of the land. His was a familiar face wherever an event was transpiring that was connected with veterinary progress, and he will be missed more on account of the silent voice than of the absent face.

Dr. Gadsden was born in Hemel Hempstead, Hertfordshire, England, October 11, 1832, his father being a farmer, who intended that his son should follow the same pursuit, and at the age of 17 he was apprenticed to a scientific farmer, with whom he remained two years, but disliking that pursuit he left and went to London, where he commenced the study of veterinary medicine, acquiring a practical knowledge by serving under several practitioners, and on January 1, 1856, entered the Royal College of Veterinary Surgeons, from which he graduated April 30, 1858.

He was first engaged as assistant by Wm. T. Stanley, who had a large practice in Leamington, Warwickshire, with whom he remained one year, when he purchased a practice for himself at Bracknell, in Berkshire. He remained there until the fall of 1867, acquiring an extensive practice, and also serving by appointment of the English government as veterinary inspector. He then came to the United States, and located in Philadelphia, in January, 1868. Here he devoted himself to his profession, and soon built up a large practice among her best known citizens. He became later identified with the Bureau of Animal Industry in the stamping out of contagious pleuro-pneumonia, being one of its corps of inspectors sent to Chicago when it became decided to check its westward progress, and his valuable experience and ripe judgment were of much assistance to the authorities in those momentous times, for failure at that point, where the disease was alarmingly established among the distillery-fed milch cows of that city, would have destroyed the design of the government to stamp the disease from the country. The inspectors worked under many disadvantages, as their

purposes were not understood, and when their objects were known no faith was placed in their movement by interested parties because of its (to them) impracticableness. But Dr. Gadsden was an enthusiast, and his strong faith and great energy helped largely to strengthen the purposes of the government, and the successful termination of that grand work has been the greatest appeal the struggling veterinary profession of this country has ever made in seeking legislative recognition and in extending veterinary watchfulness of states and municipalities over the meat and milk industries.

Dr. Gadsden retired from practice in 1891, but ever retained his interest in the profession. About a year ago he married the widow of the late Dr. Michener, who survives him.

DAVID ROBERGE.—Probably no man in the history of the country was better known as a shoer of horses than was the subject of this sketch, who died at Coney Island, New York, on July 9th, at the age of 72. He had for many years held a foremost position as a shoer of valuable road-horses, being celebrated as a corrector of defectuosities of gait and for the overcoming of lameness by mechanical means. This latter proposition became a passion with him, and his time became almost engrossed with that idea, which was greatly encouraged by constant association with Robert Bonner, who was his life-long friend. His work, "The Foot of the Horse," enjoyed a large sale, which is yet maintained. His son, Frank P. Roberge, graduated in veterinary medicine from the American in 1880, became the inventor of the hoof-expander bearing his name, and has devoted himself largely to it ever since.

WILDER D. SOUTHWICK, D.V.S.—Of typhoid fever, on July 13th, after an illness of five weeks, this promising and hard-working veterinarian died at his home in Woonsocket, R. I., leaving a widow and two young daughters, besides a large circle of relatives and friends to mourn for the untimely culmination of a career which was reflecting the greatest credit upon his profession and alma mater. He was just thirty-one years old, was a graduate of the American Veterinary College, class of '87, and had already achieved a prominent position in his city and State, being especially energetic in a study of the tuberculin test as a means of eradicating the scourge of consumption from among the dairy herds of his State, his opinion being sought frequently in consultation in various parts of New England in reference to that subject. The sympathy of a wide circle is extended to his bereaved family.

PROF. G. COLIN.—Prof. G. Colin, the French veterinary physiologist, known all over the world, died at the age of 71 in the town where he had retired when he left Alfort, and where he was born. After a scholarity at the school of Lyon, where he revealed his superiority as a worker, he remained in that school as Chef de Service (adjunct) for some time and then went to Alfort, where he remained until he retired. The principal work left by him is his treatise of "Comparative Physiology of the Domestic Animals," to-day the only one of great value in our medicine. Member of the Academy of Medicine of Paris, and of numerous societies of learning, Prof. G. Colin was a passionate adversary of Pasteur, Chauveau and Bouley. His death takes off the last member of the old faculty of Alfort of 35 years ago.

GEORGE LEICH, D.V.S.—The untimely death of this veterinarian is recorded with much regret. He had worked hard to obtain his education in the profession which had ever been his ambition, which was accomplished at the examination in 1894 at the American Veterinary College. He located at his home in Brooklyn, and was building up a lucrative practice by strict and conscientious methods. About two months ago, while dissecting out a cancerous tumor from a horse his scalpel turned and cut his hand, which subsequently became the centre of infection of septicæmia, resulting in his death, at his home, 1540 Gates Avenue, Brooklyn, on August 1st. He was 34 years old, and leaves a widow and two children.

W. E. SMITH, D.V.S.—The death from diabetes of this well-known veterinarian, at his home in Sedalia, Mo., is announced. He graduated from the American Veterinary College in 1891, and had built up a large practice, being an especially practical veterinarian and well liked in his community. His practice has fallen into the hands of Dr. W. A. Porter, of Dunksburg, Mo.

CAST OF A LIVING HORSE.—An innovation was recently made by the sculptor Partridge in moulding the statue of Grant, unveiled in Brooklyn in April, in that he made a cast from a living instead of a dead horse. In his experiments he began with a black Kentucky horse of perfect lines, and it was very difficult to keep the animal sufficiently still, but finally they hammered upon one foot as though a blacksmith were driving on a shoe while a cast of the opposite leg was made.

NEWS AND ITEMS.

CHARLES H. FORD, D.V.S., formerly of Washington, D. C., has located in New Orleans, La.

PROF. E. NOCARD, of Alfort, has been nominated Commander of the Order of Leopold.

PROF. A. LIAUTARD has been unanimously elected member of the Société de Medecine Veterinaire Pratique of Paris.

DR. R. S. HUIDEKOPER, of the *Jour. of Com. Med.*, is convalescing from his recent severe sickness in the White Mountains.

ADULTERATED MILK.—It is estimated that if pure milk were supplied to the residents of London it would require between 20,000 and 30,000 more cows than are now used.

DR. T. A. GEDDIS, who has been in charge of the government meat inspection at the Ottumwa (Iowa) abattoir, has been ransferred by the commission to Davenport, Ia., a larger field.

THE subject of the formation of an association of veterinarians connected with agricultural experiment stations is being agitated, to hold meetings in conjunction with the U. S. V. M. A.

DR. W. HORACE HOSKINS, of Philadelphia, was recently elected an honorary member of the New York County Veterinary Medical Association. A neat compliment to a hard-working associationist.

DR. W. J. COATES, chief surgeon to the American Veterinary Hospital, and Professor of Surgery to the A.V.C., had the misfortune to break his arm on August 12th. The patient is doing well, and will be at his post in a short time.

JURY DUTY IN ENGLAND.—The veterinarians of Great Britain are agitating the passage of an act of Parliament to exempt veterinary surgeons from serving upon juries. They should see that no meddlesome clauses are added by rural members.

MEAT AND MILK INSPECTION IN VIRGINIA.—Dr. W. H. Harbaugh, of Richmond, writes: "We are doing good work here in our efforts to establish meat and milk inspection, and I have not the least doubt that we will eventually succeed."

TETANUS ANTITOXINE.—The New York City Board of Health is trying to improve this serum. So far its use has met with varying success in veterinary practice. Let us hope that

in the near future we may speak more highly of its efficacy in the horse.

VETERINARY SURGEONS OF NEW YORK AND BROOKLYN.—In the County of New York, according to the *Jour. of Com. Med.*, there are 328 registered veterinary surgeons, 217 by diploma, 111 by affidavit; Kings county has 112 registered, 78 by diploma and 34 by affidavit.

THE August *Journal of Comparative Medicine* urges the re-election of Prof. Stewart as Secretary of the U. S. V. M. A., and the REVIEW most cordially seconds the suggestion, being sure that the welfare and interests of the association could not be more zealously nor faithfully guarded.

LABOR LIGHTENERS.—A veterinarian of national reputation concludes his letter of August 12th as follows: "Allow me to say that you are making the REVIEW more welcome every month, and I sincerely hope that the financial results are on a par with its merits as a veterinary publication."

FOLLOWING the example set by the United States with pleuro-pneumonia, Austria, which was extensively infested by that disease, decided to apply the system of the total abatage of diseased and contaminated animals and since the first of March that country is entirely free from that disease.

DR. J. MILLER, formerly in private practice at Ottumwa, Ia., but for the past several months in the Civil Service Commission's employ at East St. Louis, has been placed in charge of the inspection work at the abattoir at Ottumwa. The doctor will certainly find it very pleasant to be returned to his old friends.

IMPORTATION OF UNITED STATES CATTLE INTO ENGLAND.—Replying to an inquiry in Parliament recently, Mr. Walter Long said: The number of cattle imported from the United States was approximately 300 in 1875, 400 in 1876, 11,500 in 1877, 68,000 in 1878. In the last four years the number had been: 397,000 in 1892, 249,000 in 1893, 381,000 in 1895, 274,000 in 1895.

A NEW YORK VETERINARIAN informs the REVIEW that on Tuesday, August 11th, he treated seven horses suffering from heat-exhaustion in the streets; that their temperatures registered as follows: 108, 109, 107, 108½, 110, 107½, 109½,—an average of 108½; that all recovered from the danger of death, but that the horse having the highest temperature became the subject of acute laminitis.

THE HORSE'S HAT.—Last year a humane horse-owner in Bordeaux provided a hat for each of his horses, and it is now becoming a popular article of trade in France. It is made of straw and covers the eyes and forehead of the horse, while openings are left for the ears. A sponge is kept on the inside of the hat and this is moistened from time to time with vinegar, so as to keep the head cool.

DEATH CERTIFICATES.—Why would it not be a good idea to compel veterinarians to give death certificates for horses at least, especially in the larger cities? This would tend to do away with so much quackery and keep animals from suffering at the hands of illiterate persons. It would also help veterinarians, by preventing non-registered men from practicing, as they could not legally sign certificates.

ADVANCE IN VETERINARY SCIENCE.—As time goes on veterinary science is and has been rapidly advancing. Great strides have been made in the various modes of treatment,—due much to the discovery of the cause of many diseases. In order to comprehend these methods, veterinarians must read the leading veterinary journals. Do not think twice but subscribe at once for THE AMERICAN VETERINARY REVIEW and advise other veterinarians to do the same.

A MAN IS NEVER A PROPHET IN HIS OWN COUNTRY.—It is a curious coincidence that while the one-hundredth anniversary of Edward Jenner's first successful vaccination in the little Gloucestershire village where he practiced is being celebrated throughout Europe, the town of Gloucester is suffering from an epidemic of smallpox, which has already cost hundreds of lives, and which is due to the town authorities being opposed to vaccination.

PRINCIPAL WILLIAMS, of the New Veterinary College, Edinburgh, and editor of the *Veterinary Journal*, sailed on July 14th for Jamaica, whither he was dispatched by the British Government to investigate a disease among the cattle of that colony which has baffled the veterinarians at that point. On the eve of his departure he was tendered a complimentary dinner by prominent members of the profession, when many happy remarks were indulged in at the expense of the distinguished guest.

SOCIETY INSTRUMENTS.—In England many of the local veterinary medical societies own a collection of instruments, mostly those rarely used or of an expensive character, and when a mem-

ber has occasion to employ one of them he applies to the secretary, who is the custodian of them, and he makes the loan, for a stipulated time, when the instrument must be returned in good shape, the member being responsible for any damage done. This would not be a bad plan for many of our American associations, especially in rural districts, where it requires a long time to obtain them from the maker.

SUCCESSFUL HORSE SHOWS.—There have been more horse shows this season than ever before, and, without exception, they were entirely successful, many of them, like that at Long Branch, surpassing in attendance and character of exhibits all predecessors. These events help to popularize the pleasure horse and to help the veterinarian practically. They are encouraging signs of the times, and especially grateful in silencing those fanatical nondescripts who are predicting the extinction of man's faithful servant, and joy, in favor of the machine with the tuberculous diathesis.

STATE VETERINARIAN IN CHARGE OF HOGS AT IOWA FAIRS.—The Iowa State Board of Health has made the following ruling: All hogs presented for exhibition at the Iowa State Fair and the Sioux City Inter-State Fair shall be subject to inspection by the State Veterinary Surgeon before entering the fair grounds, and to daily inspection during the exhibition. Should any animals be found diseased with hog cholera or swine plague they must be immediately removed to a place of quarantine. The show pens must be cleansed and disinfected under the supervision of the State Veterinary Surgeon before and during the fair.

"SANITAS" PREPARATIONS.—The American and Continental "Sanitas" Company, Limited, 636 West 55th Street, New York City, whose preparations are now so well and favorably known, practically cover the whole field of the important subject of disinfection. Their preparations are put up in a great variety of forms, both liquid and solid, to suit all requirements; from the rough disinfection of the drain and stable to the finest disinfection and antiseptic treatment of the wound. Furthermore, "Sanitas" is non-poisonous. The company have recently published a book, "How to Disinfect," which treats this difficult subject in an excellent and thoroughly practical manner. We would suggest to our readers to write to the company for a copy of the book, which will be sent free on mentioning this journal.

MORE UNPROFESSIONAL ADVERTISING.—The Veterinary

Department of that staid and honorable seat of learning, the University of Pennsylvania, must hang her head when she reads the advertisement, in the *Breeder and Sportsman*, of California, of W. A. W. Turnbull, V.M.D., "formerly resident surgeon in charge of the veterinary hospital, University of Pennsylvania," who claims that his "Curine" is "the most powerful and best preparation in the world," which bears his confidence to such an extent that he "will wager $100 that one bottle will reach deeper-seated troubles, etc., than any other preparation in the world." Would the talked-of chair of "Deontology" in our American colleges save us from producing such members of the profession?

HORSES OVERCOME BY HEAT.—A correspondent requests us to say that in view of the unprecedented hot weather through which this country has recently passed, and the large number of horses prostrated in the streets of our large cities, it would be an excellent opportunity for veterinarians to discuss the subject of the effects of over-heating on horses, and the best methods of treating them. We are quite certain that the profession has never had so good an opportunity for observing these effects, and we entirely agree with our correspondent that much practical good could be added to our knowledge of the phenomena and our therapeutical efforts if those who have been specially favored or who have been more than ordinarily successful in a particular line of treatment, would narrate their experiences for the benefit of practitioners at large. We offer the profession the pages of the REVIEW for such a purpose.

SOME BITS OF ADVICE TO VETERINARIANS.—Always be on hand . . . . Make your calls promptly . . . . Examine your cases thoroughly . . . . Keep a record of the same . . . . When making a diagnosis, be positive . . . . Be careful about prognosing; trifling affections often become complicated . . . . Watch the action of your drugs . . . . Do not be too positive about the so-called specifics . . . . Note the length of time your cases take . . . . In all cases note the appetite; coax your patients to eat, if only a small amount . . . . See that the manger is clean and the food the best . . . . Attend to your duties faithfully and conscientiously . . . . Charge a fair price for your services . . . . Do not be classed as a cheap doctor . . . . During your spare moments, improve your time by writing short "Reports of Cases" for the AMERICAN VETERINARY REVIEW.—"F. X. T."

EXTREME PYREXIA.—Roscoe R. Bell, D.V.S., of Brooklyn, reports that he was called to a patient on July 31st, the subject being a driving horse which had been driven from Brooklyn to Coney Island, at a very moderate speed, and tied in the sun (which was extremely hot) while the occupants of the carriage enjoyed themselves on the beach. At noon the horse was offered his dinner of oats, which he refused, and about six o'clock his head was turned toward his city home, but while he plodded along there was no spirit to his movements, and when three miles had been traversed began to stagger, meantime perspiring and showing other indications of being overwrought. He was forced to continue his unwilling journey, but after another mile became unable to proceed further. At this point Dr. B. was telephoned for, arriving in half an hour, finding the patient lying in a field, with rapid respiration, frenzied attempts to arise, but evidently in a dying condition. No medication was indulged in, but recognizing that it was a case of the effects of heat upon the cerebrum, his temperaturer was taken, and found to be 110° F. The registration was epeated, and the mercury ran so quickly to the extreme rating of his clinical thermometer, that he thinks there is no doubt but that the true amount of heat would have registered 115 or 120 degrees Fahrenheit.

DESTROYING TICKS WITH COTTON-SEED OIL.—Dr. M. Francis, of the Texas Experiment Station, has lately drawn attention in a paper to the method of destroying ticks upon cattle of his State, and as the study of the tick pest is one of his principal duties, his description is of much value. After several unsuccessful attempts to destroy them by various means the dipping process has been adopted with the most gratifying results. A large vat of the capacity of 5,000 gallons is used, and the cattle are forced to swim through it. Various carbolic and arsenical sheep-dips were employed, but either the cattle had to be kept in them too long a time in order to kill all the ticks or they were irritated by the ingredients. This led Dr. Francis to try the effects of oil in destroying the ticks. It is well known that grease or oil of almost any kind is fatal to insects, lice, etc., and so a layer of three-quarters to one inch in thickness of crude cotton-seed oil on the water in the vat was first used, the cattle being forced to swim through it, so that when they emerged from the vat they were covered perfectly with the oil. This procedure had no ill effect upon the cattle, but was exceedingly fatal to the ticks, and was superior to any other treatment ex-

perimented with. Kerosine emulsion was found to have no practical value; crude petroleum irritates the skin and emulsifies with water; resin oil is useless for the purpose; corrosive sublimate is too dangerous, and is not very fatal to ticks, even in solution of 1.250 in water, and tobacco sheep-dips are worthless. Dr. F. is studying the effects of other oils, the most promising being West Virginia black, a mineral oil.

HORSES OF PARIS.—The Paris Omnibus Company has the largest and finest collection of horses in the world—15,084 horses, driven to the double-decked omnibuses, three abreast, matched up of the same color and of the active draught-horse type that travel in a sweeping trot from stand to stand. They have some lighter horses on suburban street-car lines and some in cabs and carriages, and some heavy draught teams of monstrous weight, some three abreast, some four-horse teams, and some in great heavy carts driven two, three or four tandem. Monsieur Lavalard, the manager, is a horseman of remarkable ability. He has his buyers visit every horse-breeding district of France, and select just such horses as come up to their standard, much as the French government officials, who have the first choice of breeding stallions, and pay the highest prices. Such customers as these stimulate the farmers to raise the finest horses they can, as they are sure of a good price for a good horse. Recent statistics show that Paris has 86,150 horses in that city, where the horseless carriages were to replace the horses. . . . These belong to 11,523 persons. For the whole of the department of the Seine there are 115,619 horses, belonging to 24,106 owners. There are but few geldings seen in Paris, as the geldings are the popular horses for work in all parts of France. The Province of the Perch supplies many horses of the handsome grays and some blacks of the active draught type, Brittany the light draught, and Normandy and Boulogne the heavy draught.—*Live Stock Journal.*

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